Project Agreement

This Project Agreement (the "Agreement") is made by and between the City of Frisco organized under the laws of the state of Texas and GeoComm Inc., a Minnesota corporation with its principal offices at 601 West St. Germain Street, St. Cloud, MN, 56301.

In this agreement the party who is contracting to receive the professional services shall be referred to as "the City" and the party who will be providing the services shall be referred to as "GeoComm" Or "Contractor."

The City issued a Competitive Sealed Bid No. 0809-079 and Addendum No.1 thereto, seeking competitive sealed bids for GIS Software for Emergency Response, to be used by the City and to perform such work as may be incidental thereto, which is attached hereto as Exhibit "A" and incorporated herein on its entirety by reference for all purposes (collectively "Bid Request"). GeoComm timely submitted a sealed bid to provide services in response to the Bid Request which is attached hereto as Exhibit "B" and incorporated herein in its entirety by reference for all purposes (collectively the "Submittal").

GeoComm has an established background in communications engineering, geographic information systems development, cartography, software development, and professional project management and is willing to provide those services to the City based on this background.

The City selected GeoComm to provide to provide the GIS Software for Emergency Response sought in the Bid Request. Now, therefore, in consideration and between the parties, hereto as follows:

Section 1 - Description of Service

Beginning upon Agreement signing GeoComm will provide the following goods and services (collectively the Services):

- GIS Services
- GeoLynx 9-1-1 Dispatch Software – eight full version licenses
- Custom CAD Interface
- GeoLynx AVL Automatic Vehicle Location – eight licenses
- GeoLynx Mobile Response – 81 licenses
- GeoLynx EOC – one license
- Software Training Services
- Software Support Services
- Services described in Exhibit A-E which are attached to and made a part of this Agreement

Section 2 – Payment

The City will pay a fee to GeoComm of $201,796.00 (detailed in Exhibit C) for services as described in this Agreement and provided under this Agreement by GeoComm. The City agrees to pay GeoComm on the following schedule:

$	80,719	40% upon Agreement signing
$	40,359	20% upon completion of GeoLynx 9-1-1, AVL,CAD and Mobile installation
$	40,359	20% upon completion of EOC software installation
$	40,359	20 % upon sign-off of Acceptance Test Plan

Section 3 - Late Payment Fee

All invoices issued under this Agreement shall be submitted to the City. A 1.5% service charge shall be assessed to all invoices not paid within 45 calendar days from date of invoice.

Section 4 - Expense Reimbursement

GeoComm shall pay all "out-of-pocket" expenses and shall not be entitled to reimbursement from the City except by mutual prior agreement.

Section 5 - Performance of Services

GeoComm will work as many hours as is necessary to fulfill its obligations under this Agreement.

Section 6 - Standards of Work

GeoComm agrees that the performance of work described in this Agreement and pursuant to this Agreement shall be done in a professional manner and shall conform to employ the care and skill ordinarily used by members of GeoComm's profession. GeoComm warrants that all equipment and/or software provided under this Agreement shall be new and in good working condition. All packaging and packing shall be in accordance with good commercial practice.

Section 7 - Statement of Work

GeoComm shall furnish all the hardware and software as outlined in the Scope of Services exhibit and provide such tools, supplies, labor, and supervision necessary for installation of those items.

The City shall, in addition to responsibilities described in Exhibit A-E, perform the following coincident with the performance of this Agreement:

1. Designate a Project Coordinator and reserve the right to change this appointment.
2. Provide access to City facilities and/or sites as requested by GeoComm and have such facilities available for installation of the system to be installed.
3. Provide adequate telephone lines for the operation of the equipment.
4. Provide a designated work area with adequate heat and light, and a secure storage area for the system delivered to the City. The City shall be solely liable for loss or damage to equipment following installation.

Section 8 - Changes in the Work

The City may, at any time by written order, make changes within the general scope of the work including but not limited to, revisions of, additions to, or subtractions from, portions of the work, or changes in method of shipment or packaging and place of delivery.

If any change order causes an increase or decrease in the cost of or time required for the performance of any part of the work under this Agreement, an adjustment based on the exhibits, shall be made in the Agreement price or delivery schedule, or both, and the Agreement shall be modified in writing accordingly.

Section 9 - Sites

This Agreement is predicated on the utilization of communications center sites, radio transmission sites, and site configurations which have been selected by the City. Should GeoComm and the City determine during the course of performance of this Agreement that the sites or configuration selected are no longer available or desired, new or replacement sites or configurations will be selected and approved by both GeoComm and the City. If any price adjustments are necessary as a result of these new or replacement sites, such price adjustments will be made to this Agreement by change order in accordance with the exhibits.

Section 10 - Excusable Delays

Neither GeoComm nor the City shall be responsible for delays or lack of performance resulting from acts beyond the reasonable control of the party or parties.

Such delays may cause an impact on the Installation Schedule stated in this agreement. Such delays will be subject to an Agreement Addendum.

Section 11 - Taxes

The City as a taxing authority may be excluded from paying Federal, State, or Local excises, sales, lease, gross income, service, rental, use, property, occupation, or similar taxes. If GeoComm is required to pay taxes of the City, the City shall pay to GeoComm the amount of such taxes no later than thirty (30) days after receipt of an invoice.

Section 12 - Shipping, Title, and Risk of Loss

GeoComm reserves the right to make deliveries in installments. Title to the equipment shall pass to the City upon delivery of said equipment. After delivery and installation, risk of loss and damage to the articles shall be borne by the City.

Section 13 - Limitation of Liability

Except for personal injury or death, the City's total liability under this Agreement, including but not limited to breach of Agreement, negligence, warranty, strict liability in tort, or otherwise is limited to the difference between the market price at the time and place for tender of the goods and the unpaid sales price less expenses saved in consequence of the breach by GeoComm. In no event shall the City be liable for GeoComm's incidental or consequential damages to the full extent such may be disclaimed by law.

Section 14 - Disclaimer of Patent License

Nothing contained in this Agreement shall be deemed to grant, either directly or by implication, estoppels or otherwise, any license under any patents or patent applications of GeoComm. Except, the City shall have the normal non-exclusive royalty-free license to use that is implied or otherwise arises by operation of law in the sale of a product.

Section 15 - Termination

Either party, upon thirty (30) days written notice to the other party, may terminate this Agreement for breach of the material terms of this Agreement and failure to cure any deficiency within a reasonable time after notice thereof. If the City terminates because GeoComm has breached a material term of this Agreement, GeoComm shall refund all amounts received to that point. If GeoComm terminates soley because the City has breached this Agreement, the City shall forfeit any funds paid and return any software and hardware received.

Section 16 - Relationship of Parties

The parties understand that GeoComm is an independent contractor and not an employee of the City. The City will not provide fringe benefits, including health insurance benefits, paid vacation, or any other employee benefit for the benefit of GeoComm as a function of this agreement.

Section 17 - Disclosure

GeoComm is required to disclose any outside activities or interests, including ownership or participation in the development of prior inventions, that conflict or may conflict with the best interests of the City. Prompt disclosure is required under this paragraph if the activity or interest is related, directly or indirectly, to any activity that GeoComm may be involved with or on behalf of the City.

Section 18 - Employees

GeoComm's employees and agents, if any, who perform services for the City under this Agreement shall also be bound by the provisions of this Agreement.

Section 19 - Injuries

GeoComm acknowledges its obligation to obtain appropriate insurance coverage for the benefit of GeoComm and its employees. GeoComm waives any rights to recover damages from the City for any injuries that GeoComm and/or its employees may sustain while performing services under this agreement and that are in any way a result of the negligence of GeoComm or its employees or agents.

Section 20 - Indemnification

GeoComm shall release, defend, indemnify and hold harmless City, and its city council members, officers, agents, representatives and employees from and against all damages, injuries (including death), claims, property damages (including loss of use), losses, demands, suits, judgments and costs, including reasonable attorney's fees and expenses (including attorneys' fees and expenses incurred in enforcing this indemnity), caused by the negligent, grossly negligent, and/or intentional act and/or omission of GeoComm, its officers, agents, representatives, employees, subcontractors, licensees, invitees or any other third parties from whom GeoComm is legally responsible, in its/their performance of this Agreement and/or arising

out of goods and/or services provided by GeoComm pursuant to this Agreement, regardless of the joint or concurrent negligence or strict liability of the City (hereinafter "Claims"). This indemnification provision and the use of the term "Claims" is also specifically intended to apply to, but not limited to, any and all claims, whether civil or criminal, brought against City by any government authority or agency related to any person providing services under this Agreement that are based on any Federal immigration law and any and all claims, demands, damages, actions and causes of action of every kind and nature, known and unknown, existing or claimed to exist, relating to or arising out of any employment relationship between GeoComm and its employees or subcontractors as a result of that subcontractor's or employee's employment and/or separation from employment with GeoComm, including but not limited to, any discrimination claim based on sex, sexual orientation or preference, race, religion, color, national origin, age or disability under federal, state or local law, rule or regulation, and/or any claim for wrongful termination, back pay, future wage loss, overtime pay, employee benefits, injury subject to relief under the workers' compensation act or would be subject to relief under any policy for workers compensation insurance, and any other claim, whether in tort, contract or otherwise. GeoComm is expressly required to defend City against all such Claims.

In its sole discretion, City shall have the right to approve or select defense counsel to be retained by GeoComm in fulfilling its obligation hereunder to defend and indemnify City, unless such right is expressly waived by the City in writing. City reserves the right to provide a portion or all of its own defense; however, City is under no obligation to do so. Any such action by City is not to be construed as a waiver of GeoComm's obligation to defend City or as a waiver of GeoComm's obligation to indemnify City pursuant to this Agreement. GeoComm shall retain City approved defense counsel within seven (7) business days of City's written notice that City is invoking its right to indemnification under this Agreement. If GeoComm fails to retain counsel within such time period, City shall have the right to retain defense counsel on its own behalf, and GeoComm shall be liable for all costs incurred by City.

This Section shall survive termination of this Agreement.

Section 21 - Insurance

GeoComm shall obtain liability insurance for both personal injury and property damage. Any policy obtained and maintained under this clause shall provide that it shall not be cancelled, materially changed, or not renewed without thirty days prior notice thereof to the City.

Minimum limits for GeoComm liability insurance shall be in the amount of $1,000,000.00 for any number of claims arising out of a single occurrence under a single limit or combined limit or excess umbrella general liability insurance policy. GeoComm shall additionally obtain Worker's Compensation Insurance extending coverage to all its employees.

Section 22 - Data Confidentiality

GeoComm agrees to review, examine, inspect, or obtain City data only for the purposes described in this agreement and to at all times hold such information confidential. The obligation to protect the confidentiality of confidential information disclosed to the other party shall extend for a period of five (5) years following disclosure and shall survive early termination of this Agreement.

Section 23 - Records Retention and Availability

GeoComm agrees that the City, the State Auditor, or any of their duly authorized representatives at any time during normal business hours and as often as they may reasonably

deem necessary shall have access to and the right to examine, audit, excerpt, and transcribe any books, documents, papers, records, etc., which are pertinent to the accounting practices and procedures of GeoComm and involve transactions relating to this Agreement.

GeoComm agrees to maintain these records for a period of three (3) years from the date of termination of this Agreement.

Section 24 – Ownership

It is agreed by and between the parties that all products created as a result of this Agreement will be the sole property of the City. With the exception of the GeoComm's proprietary software products, all products created and delivered under this Agreement may be used, altered, and distributed at the City's discretion.

Section 25 - Consideration

This Agreement is executed by the parties hereto without coercion or duress and for substantial consideration, the sufficiency of which is forever confessed.

Section 26 - Counterparts

This Agreement may be executed in a number of identical counterparts, each of which shall be deemed an original for all purposes.

Section 27 - Authority to Execute

The individuals executing this Agreement on behalf of the respective parties below represent to each other and to others that all appropriate and necessary action has been taken to authorize the individual who is executing this Agreement to do so for and on behalf of the party for which his or her signature appears, that there are no other parties or entities required to execute this Agreement in order for the same to be an authorized and binding agreement on the party for whom the individual is signing this Agreement and that each individual affixing his or her signature hereto is authorized to do so, and such authorization is valid and effective on the date hereof.

Section 28 - Representations

Each signatory represents this Agreement has been read by the party for which this Agreement is executed and that such party has had an opportunity to confer with its counsel.

Section 29 - Sovereign Immunity

The parties agree that the City has not waived its sovereign immunity by entering into and performing its obligations under this Agreement.

Section 30 – Nondiscrimination

During the performance of this Agreement, GeoComm agrees as follows:

GeoComm shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. GeoComm agrees

to post in conspicuous places, available to employees and applicants for employment, notices setting the provisions of this nondiscrimination clause.

GeoComm, in all solicitations or advertisements for employees placed by or on behalf of GeoComm, shall state that such they are an equal opportunity employer.

Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

GeoComm shall include the provisions of the foregoing paragraphs of this section in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

Section 31 - Drug-Free Workplace to be maintained by the Contractor

During the performance of this Agreement, GeoComm agrees as follows:

1. GeoComm shall provide a drug-free workplace for all of their employees. GeoComm agrees to post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the workplace and specify the actions that will be taken against employees for violations of this prohibition.

GeoComm, in all solicitations or advertisements for employees placed by or on behalf of GeoComm, shall state that such contractor maintains a drug-free workplace.

Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

GeoComm shall include the provisions of the foregoing paragraphs of this section in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

Section 32 - Assignment

GeoComm's obligations under this Agreement may not be assigned or transferred to any other person, firm, or corporation without the prior written consent of the City.

Section 33 - Notices

All notices required or permitted under this Agreement shall be in writing and shall be deemed delivered in person or deposited in the United States mail, postage prepaid, addressed as follows.

City of Frisco

Susan Olson
Information Services and GIS Manager
Department of Information Technology
City of Frisco
6101 Frisco Square Blvd.
Frisco, TX 75034
Phone (972) 292-5183 Fax (972) 292-5199 E-mail solson@friscotexas.gov

GeoComm

Scott Wolhart, Assistant Technical Services Manager
601 West St. Germain Street, St. Cloud, MN 56301
Phone (320) 240-0040 Fax (320) 240-2389 E-mail swolhart@geo-comm.com

Either party may change such address from time to time by providing written notice to the other in the manner set forth above.

Section 34 - Entire Agreement

This Agreement contains the entire agreement of the parties and there are no other promises or conditions in any other agreement whether oral or written. This Agreement supersedes any prior written or oral agreements between the parties.

Section 35 - Amendment

This Agreement may not be modified or amended unless the amendment is made in writing and is signed by both parties.

Section 36 - Severability

If any provision of this Agreement shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of this Agreement is invalid or unenforceable, but that by limiting such provision it becomes valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

Section 37 - Waiver of Right

The failure of either party to enforce any provision of this Agreement shall not be construed as a waiver or limitation of that party's right to subsequently enforce and compel strict compliance with every provision of this Agreement.

Section 38 - Laws to be Observed

GeoComm shall keep fully informed of all Federal and state laws, all regulations pertaining to the Occupational and Safety Hazards Act (OSHA), all local laws, ordinances and regulations, and all orders and decrees of bodies and tribunals having any jurisdiction or authority, which in any manner affect the conduct of work.

Section 39 - Applicable Law

If there is any dispute concerning this agreement, the laws of the State of Texas shall apply. Proper venue and jurisdiction for all lawsuits, claims, disputes, and other matters in questions between the parties to this agreement or any breach thereof shall be in Collin County, Texas.

Section 40 - Conflicts

This agreement shall incorporate the terms and provisions set forth in Exhibit A-E, attached to this Agreement. To the extent that any of the Exhibits are in conflict with the provisions of this Agreement, the provisions of this Agreement shall control. If the provisions in Exhibit A and B conflict with Exhibit C, D, and/or E, the provisions in Exhibit C, D, and/or E shall control.

For City of Frisco

By: _____ Date: _____

George Purefoy/City Manager

For GeoComm

By: _____ Date: _____

Janet Grones/Treasurer

GENERAL INFORMATION

CITY OF FRISCO, TEXAS

COMPETITIVE SEALED PROPOSAL NO. "0809-079"

"GIS Software for Emergency Responses"

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DOCUMENTS ARE DUE TO THE OFFICE OF THE PURCHASING MANAGER PRIOR TO: "10/10/08" @ 2:00PM

NO LATE PROPOSALS WILL BE ACCEPTED

ORIGINAL AND THREE COPIES REQUIRED

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DOCUMENTS
MAY BE DELIVERED OR
MAILED TO:

CITY OF FRISCO
TOM JOHNSTON,
PURCHASING MANAGER
6101 Frisco Square Blvd.
FRISCO, TX 75034

Deadline for Submittal of
Questions via E-mail Only
tjohnston@ci.frisco.tx.us

"10/1/08 4:00 PM CST"

FOR ADDITIONAL INFORMATION CONCERNING THIS PROPOSAL PLEASE

CONTACT:

Tom Johnston C.P.M.
Purchasing
Managertjohnston@ci.frisco.tx.us972
292 5540

Jean Stellatella
Buyerjstellatella@friscotexas.gov972
292 5541

CITY OF FRISCO

COMPETITIVE SEALED PROPOSAL NUMBER "0809-079"

RFP for "GIS Software for Emergency Responses" BIDDER MUST SUBMIT ORIGINAL PROPOSAL PLUS THREE "COPIES" TO FACILITATE EVALUATION. IF A "COPY" IS NOT SUBMITTED WITH THE ORIGINAL, YOUR PROPOSAL MAY BE CONSIDERED AS "NON-RESPONSIVE TO SPECIFICATIONS" AND MAY NOT BE CONSIDERED FOR FURTHER EVALUATION.

The City of Frisco (the "City") is accepting Competitive Sealed PROPOSALs for "GIS Software for Emergency Responses"

It is the policy of the City to involve small businesses and qualified minority/woman owned businesses to the greatest extent possible in the procurement of goods, equipment, services, and construction projects.

Proposal must be received by "10/10/08" at 2:00 PM BY THE PURCHASING MANAGER'S OFFICE. NO PROPOSAL WILL BE ACCEPTED AFTER THAT DATE AND TIME. ALL PROPOSALS RECEIVED AFTER THIS DATE AND TIME WILL BE CONSIDERED UNRESPONSIVE.

Proposals will be publicly opened and read at the Frisco City Hall located at 6101 Frisco Square Blvd., Frisco, Texas 75034 on "10/10/08" at 2:05 PM.

Write the competitive sealed proposal number "0809-079", name of proposals, RFP for "GIS Software for Emergency Responses"
and the name of your organization on the outer envelope.

Proposals are to be submitted in accordance with the attached City specifications and the "General Conditions of Bidding" attached hereto. Each bidder is required to fill in every blank; failure to do so may be used as a basis for rejection of a proposals. The City reserves the right to reject any or all proposals, to waive formalities, or to proceed otherwise when in the best interest of the City.

SEE ATTACHED SPECIFICATIONS/PROPOSAL FORM

The successful bidder may be required to execute a written contract.

GENERAL CONDITIONS OF BIDDING

1. INSTRUCTIONS: These instructions apply to all bids/proposals and become a part of the terms and conditions of any bid/proposal submitted and any agreement entered into subsequent thereto, unless exception is taken in writing by bidder when submitting bid.

BIDDING

2. FORM: Bidders must submit original and three (3) copies of the sealed bid/written quote/proposal to the Purchasing Manager prior to response due date/time. Failure to submit the additional copy may result in the bid being declared unresponsive to specification and may not be further evaluated.

3. PRICING: Price(s) quoted must be held firm for a minimum of ninety (90) days from the date of bid closing. In the case of estimated requirement contract bid, the prices must remain firm for the period as specified in the bid. “Discount from list” bids are not acceptable unless specifically requested in the bid.

4. QUANTITIES: In the case of estimated requirements contract bid, quantities appearing are estimated as realistically as possible. However, the City reserves the right to increase, decrease or delete any item or items of material to be furnished while continuing to pay the price quoted on this bid regardless of quantity. The successful bidder shall have no claim against the City for anticipated profits for the quantities called for, diminished, or deleted.

5. ERROR-QUANTITY: Bids must be submitted on units of quantity specified, extended, and show total. In the event of discrepancies in extension, the unit prices shall govern.

6. F.O.B./DAMAGE: Quotations shall be bid F.O.B. delivered to the designated Municipal Facility, Frisco, Texas and shall include all delivery and packaging costs. The City assumes no liability for goods delivered in damaged or unacceptable condition. The successful bidder shall handle all claims with carriers, and in case of damaged goods, shall ship replacement goods immediately upon notification by the City.

7. DELIVERY PROMISE-PENALTIES: Bids MUST show the number of calendar days required to place the material in the possession of the City. Do not quote shipping dates. When delivery delay can be foreseen, the bidder shall give prior written notice to the City, who shall have the right, in its sole discretion, to extend the delivery date if reasons for delay appear acceptable. Default in promised delivery, without acceptable reasons, or failure to meet specifications, authorizes the City to purchase the goods elsewhere, and charge any increase in cost and handling to the defaulting bidder.

8. BIDDER SHALL PROVIDE: With this bid response, the bidder shall provide all documentation required. Failure to provide this information may result in rejection of bid.

9. ALTERING/WITHDRAWAL OF BIDS: Bids cannot be altered or amended after submission deadline. The signer of the bid, guaranteeing authenticity, must initial any interlineations alteration, or erasure made before opening time. No bid may be withdrawn after opening time without first submitting a written reason to the Purchasing Manager and obtaining the Purchasing Manager’s approval.

10. PRESENTATION OF BIDS: No oral, telegraphic, telephonic, e-mailed, or facsimile bids will be considered at this time. All bids must be submitted in a sealed envelope.
11. CORRESPONDENCE: This bid number must appear on ALL correspondence, inquiries, bid submittal documents, etc. pertaining to this Invitation for Bid.

12. ADDENDA: Any interpretations, corrections or changes to this Invitation for Bid and specifications will be made by addenda. Sole issuing authority of addenda shall be vested in the City of Frisco Purchasing Division. An attempt will be made to mail, fax, or e-mail any addenda to all who are known to have received a copy of this Invitation for Bid. Bidders shall acknowledge receipt of all addenda in the designated area on the bid document. It is the responsibility of the bidder to ensure receipt of all addenda and to include the changes in this bid document.

13. LATE BIDS: Bids received by the City after submission deadline shall be returned unopened and will be considered void and unacceptable. The City is not responsible for lateness of mail, carrier, etc.

14. BID OPENINGS: All bids submitted will be read at the City's regularly scheduled bid opening for the designated project. However the reading of a bid at bid opening should not be construed as a comment on the responsiveness of such bid or as any indication that the City accepts such bid as responsive.

    The City will make a determination as to the responsiveness of bids submitted based upon compliance with all applicable laws, City of Frisco Purchasing Guidelines, and project documents, including but not limited to the project specifications and contract documents. The City will notify the successful bidder upon award of the contract and according to state law; all bids received will be available for inspection at that time, unless otherwise provided by law.

15. BID TABULATION: Bidders desiring a copy of the bid tabulation may request it by enclosing a self-addressed stamped envelope with bid. BID RESULTS WILL NOT BE GIVEN BY TELEPHONE. You can also download a copy on our website, www.friscotexas.gov. If you have any questions, please contact the City of Frisco, Purchasing Division, at (972292-5541.

16. PROTESTS: All protests regarding the bid solicitation process must be submitted in writing to the City within five (5) working days following the opening of bids. This includes all protests relating to advertising of bid notices, deadlines, bid opening, and all other related procedures under the Local Government Code, as well as any protests relating to alleged improprieties or ambiguities in the specifications.

    This limitation does not include protests relating to staff recommendations as to award of this bid. Protests relating to staff recommendations may be directed to the City Manager within in five (5) days of the staff recommendation memo. Unless otherwise provided by law, all staff recommendations will be made available for public review prior to consideration by the City Council.

17. BID AWARD: The City reserves the right to award a separate contract to separate bidders for each item/group or to award one contract for the entire bid. Unless stipulated in the attached bid specifications, the contract will be awarded to the lowest responsible bidder or to the bidder who provides the goods or services specified herein at the best

value for the City in compliance with Texas Local Government Code, Section 252.043.

18. CHANGE ORDERS: No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing by the City.

PERFORMANCE

19. MINIMUM STANDARDS FOR RESPONSIBLE PROSPECTIVE BIDDERS: A prospective bidder must affirmatively demonstrate bidder's responsibility. A prospective bidder must meet the following requirements:

    A. Have adequate financial resources or the ability to obtain such resources as required;
    B. Be able to comply with the required or proposed delivery schedule;
    C. Have a satisfactory record of performance;
    D. Have a satisfactory record of integrity and ethics; and
    E. Be otherwise qualified and eligible, as determined by the City, to receive an award.

    The City may request representation and other information sufficient to determine bidder's ability to meet these minimum standards listed above.

20. ASSIGNMENT: The successful bidder shall not sell, assign, transfer or convey this contract in whole or in part, without the prior written consent of the City.

21. SPECIFICATION-SAMPLES: Any catalog, brand name, or manufacturer's reference used is considered to be descriptive, not restrictive, and is indicative of the type and quality the City desires to purchase. Bids on brands of like nature and quality may be considered unless specifically excluded. If bidding on other than reference, bid must certify article offered is equivalent to specifications and it is subject to approval by the using department and the Purchasing Division. Samples, if required, shall be furnished free of expense to the City. SAMPLES SHOULD NOT BE ENCLOSED WITH BID UNLESS REQUESTED.

22. TESTING: An agent so designated, by the City, without expense to the City, may perform testing at the request of the City or any participating entity.

23. PACKAGING: Unless otherwise indicated, items will be new, unused, and in first class condition in containers suitable for damage-free shipment and storage.

24. DELIVERY: Deliveries will be acceptable only during normal working hours at the designated City Municipal Facility. The place of delivery shall be set forth in the purchase order. The terms of this agreement are “no arrival, no sale”.

25. TITLE AND RISK OF LOSS: The title and risk of loss of goods shall not pass to the City until the City actually receives and takes possession of the goods at the point(s) of delivery.

26. PATENT RIGHTS: The Bidder agrees to indemnify and hold the City harmless from any claim involving patent right infringement or copyrights on goods supplied.

PURCHASE ORDERS AND PAYMENT

27. PURCHASE ORDERS: A purchase order(s) shall be generated by the City Purchasing Manager to the successful bidder. The purchase order number must appear on all itemized invoices and packing slips. The City will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

28. BID SECURITY/BOND REQUIREMENTS: If required, bid security shall be submitted with bids. Any bid submitted without bid bond, or cashiers/certified check, shall be considered non-responsive and will not be considered for award. Performance and/or payment bonds, when required, shall be submitted to the City, prior to commencement of any work pursuant to the agreement provisions.

29. FUNDING: The City is a home-rule municipal corporation operated and funded on an October 1 to September 30 basis, accordingly, the City reserves the right to terminate, without liability to the City, any contract for which funding is not available.

30. TAXES: The City is exempt from Federal Manufacturer's Excise, and State sales taxes. TAX MUST NOT BE INCLUDED IN BID PRICING. Tax exemption certificates will be executed by the City and furnished upon request by the Finance Division.

31. PAYMENT TERMS: Payment terms are Net 30 unless otherwise specified by the City in this document. Prompt payment discounts may be used by the City in determining the lowest responsible bidder.

32. INVOICES: Invoices must be submitted by the successful bidder in duplicate to the City of Frisco, Finance Division, 6101 Frisco Square Blvd., Frisco, Texas 75034.

CONTRACT

33. CONTRACT PERIOD/RENEWAL OPTIONS: In the case of an annual contract bid, the contract shall be for a predetermined period as specified in the Invitation for Bids. If a clause for option to renew for additional period(s) is (are) included, renewal(s) will be based solely upon the option and written agreement between both the City and the Contractor. Either party dissenting will terminate the contract in accordance with its initial specified term.

34. INTERLOCAL AGREEMENT: Successful bidder agrees to extend prices to all entities that have entered into or will enter into joint purchasing Interlocal Cooperation Agreements with the City. The City is a participating member of the Collin County Governmental Purchasing Forum (the “Forum”). As such, the City has executed Interlocal Agreements, as permitted under Section 791.025 of the Texas Government Code with certain other governmental entities in Collin County authorizing participation in a cooperative purchasing program. The successful bidder may be asked to provide products/services, based upon bid price, to any other participant in the Forum.

35. AUDIT: The City reserves the right to audit the records and performance of successful bidder during the term of the contract and for three (3) years thereafter.

36. SUCCESSFUL BIDDER SHALL: Defend, indemnify and save harmless the City and all its officers, agents and employees and all entities, their officers, agents and employees who are participating in this contract from all suits, actions or other claims of any character, name and description brought for or on account of any injuries, including death, or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful bidder, or of any agent, officer, director, representative, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful bidder shall pay any judgment with cost which may be obtained against the City and participating entities growing out of such injury or damages.

37. TERMINATION FOR DEFAULT: The City reserves the right to enforce the performance of this contract in any manner prescribed by law or deemed to be in the best interest of the City in the event of breach or default of this contract. The City reserves the right to terminate the contract immediately in the event the successful bidder fails to: (1) meet delivery schedules; or (2) otherwise performs in accordance with these specifications. Breach of contract or default authorizes the City to, among other things, award to another bidder, purchase elsewhere and charge the full increase in cost and handling to the defaulting successful bidder.

38. ACCEPTABILITY: All articles enumerated in the bid shall be subject to inspection by a City officer or employee designated for the purpose. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Manager who shall have the right to reject the whole or any part of the same. Work determined to be contrary to specifications must be replaced by the bidder and at its expense. All disputes concerning quality of supplies utilized in the performance of this bid will be determined solely by the City Purchasing Manager or designated representative.

39. REMEDIES: The successful bidder and the City agree that each party has all rights, duties, and remedies available as stated in the Uniform Commercial Code and any other available remedy, whether in law or equity.

40. VENUE: This contract will be governed and construed according to the laws of the State of Texas. This contract is performable in Collin County, Texas.

41. SILENCE OF SPECIFICATION: The apparent silence of these specifications as to any detail or to the apparent omission from it of a detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

42. NO PROHIBITED INTEREST: The bidder acknowledges and represents they are aware of the laws and City Charter regarding conflicts of interest. The City Charter states in part that "No officer, whether elected or appointed, or any employee, whether full or part time, of the City shall have a substantial financial interest, direct or indirect, in any contract, other than employment contracts, with the City; or have a substantial financial interest, direct or indirect in the sale to the City of any land, materials, supplies or services....."

43. FORCE MAJEURE: If, by reason of Force Majeure, either party hereto shall be rendered unable wholly or in part to carry out its obligations under this contract, then such party shall give notice and full particulars of such Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied upon, and the obligation of the party giving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, except as hereinafter provided, but for no longer period, and such party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term Force Majeure as employed herein, shall mean acts of God, strikes, lockouts, or other industrial disturbances, act of public enemy, orders of any kind of government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquake, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraint of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipelines, or canals, or other causes not reasonable within the control of the party claiming such inability. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of the party having the difficulty, and that the above requirement that any Force Majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lockouts by acceding to the demands of the opposing party or parties when such settlement is unfavorable in the judgment of the party having the difficulty.

44. DISCLOSURE OF CERTAIN RELATIONSHIPS Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the records administrator of the City of Frisco not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor. Chapter 176 and the questionnaire may be found at www.friscotexas.gov. By submitting a response to this request, vendor represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code.

CITY OF FRISCO CONTRACTOR INSURANCE REQUIREMENTS

Contractors providing good, materials and services for the City of Frisco shall, during the term of the contract with the City or any renewal or extension thereof, provide and maintain the types and amounts of insurance set forth herein. All insurance and certificate(s) of insurance shall contain the following provisions:

1 Name the City, its officers, agents, representatives, and employees as additional insured as to all applicable coverage with the exception of workers compensation insurance.
2 Provide for at least thirty (30) days prior written notice to the City for cancellation, non-renewal, or material change of the insurance.
3 Provide for a waiver of subrogation against the City for injuries, including death, property damage, or any other loss to the extent the same is covered by the proceeds of insurance.

Insurance Company Qualification: All insurance companies providing the required insurance shall be authorized to transact business in Texas and rated at least "A" by AM Best or other equivalent rating service.

Certificate of insurance: A certificate of insurance evidencing the required insurance shall be submitted with the contractor's bid or response to proposal. If the contract is renewed or extended by the City a certificate of insurance shall also be provided to the City prior to the date the contract is renewed or extended.

Type of Contract	Type and amount of Insurance
Special Events	General Liability insurance for personal injury (including death) and property damage with a minimum of $1 Million Dollars per occurrence and $2 Million Dollars aggregate, including coverage for advertising injury and products coverage Statutory Workers compensation insurance as required by state law (If the contractor serves alcoholic beverages) Liquor Liability with a minimum of $1 Million Dollars per Occurrence and $2 Million Aggregate. (If high risk or dangerous activities) Umbrella Coverage or Liability Excess Coverage of $ 2 Million Dollars (If automobile or limousine service is involved even if volunteers) Automobile Liability with a minimum of $1

	Million Dollars combined single limit.
Public Works and Construction	General Liability insurance for personal injury (including death) and property damage with a minimum of $1 Million Dollars per occurrence and $2 Million Dollars aggregate, including advertising injury, products coverage and (XCU) Explosion, collapse and underground (If high risk or dangerous activities) Umbrella Coverage or Excess Liability Coverage of $2 Million Dollars Statutory Workers compensation insurance as required by state law
Professional Services	Professional Liability Insurance with a minimum of $1 Million Dollars per occurrence and $2 Million Dollars aggregate. (If size or scope of project warrant) Umbrella Coverage or Excess Liability Coverage of $2 Million Dollars

Supplemental Information

Texas Government Code Section 2252.002 Non-resident bidders. A governmental entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is not less than the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

In order to make this determination, please answer the following questions:

1 Address and phone number of your principal place of business:

2 Name and address of principal place of business, and phone number of your company's majority owner:

3 Name and address of principal place of business, and phone number of your company's ultimate parent company:

MINORITY/WOMAN-OWNED BUSINESS PARTICIPATION

It is the policy of the City of Frisco to involve small businesses and qualified minority/women owned businesses to the greatest extent possible in the procurement of goods, equipment, services and construction projects. To assist us in our record keeping, please list below the names of the minority or woman-owned firms you would be utilizing in this bid, and note the monetary involvement:

NAME OF FIRM	TELEPHONE #	$ INVOLVEMENT

AFFIDAVIT OF NO PROHIBITED INTEREST

(Supplemental Information)

(I) (WE), the undersigned declare and affirm that no person or officer in (my) (our) firm, business, corporation, or board has or will have during the term of this contract a prohibited interest as that is defined in City Charter.

(I) (WE) further understand and acknowledge that the existence of a prohibited interest at any time during the term of this contract will render the contract voidable.

Name of
Contractor:_____

Title of
Officer:_____

Signature of
Contractor_____

Date: _____

ACKNOWLEDGMENT

STATE OF TEXAS *

*

COUNTY OF COLLIN *

BEFORE ME, the undersigned authority, on this day personally appeared, a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of _____ ,for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN under my hand and seal of office this the_____ day of, _____, 2008

_____

Signature of Notary Public in and for the State of Texas STAMP

SUPPLEMENTAL INFORMATION

Please provide the following information for contract development.

Is your firm?

1. Sole Proprietorship	YES	NO
2. Partnership	YES	NO
3. Corporation	YES	NO

If company is a sole proprietorship, list the owner's full legal name:

If company is a partnership, list the partner's full legal name(s):

If company is a corporation, list the full legal name as listed on the corporate charter:

Is this firm a minority, or woman-owned business enterprise?

___NO ____YES If yes, specify (___) MBE (___) WBE

Has this firm been certified as a minority/woman-owned business enterprise by any governmental agency? ____NO____ YES

If yes, specify governmental agency: _____

Date of certification: _____

For explanation please see Terms and Conditions Item #43

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire is being filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.

By law this questionnaire must be filed with the records administrator of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1	Name of person doing business with local governmental entity.
2	☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)
3	**Name each employee or contractor of the local governmental entity who makes recommendations to a local government officer of the governmental entity with respect to expenditures of money AND describe the affiliation or business relationship.**
4	**Name each local government officer who appoints or employs local government officers of the governmental entity for which this questionnaire is filed AND describe the affiliation or business relationship.**

5	**Name of local government officer with whom filer has affiliation or business relationship. (Complete this section only if the answer to A, B, or C is YES.** This section, item 5 including subparts A, B, C & D, must be completed for each officer with whom the filer has affiliation or other relationship. Attach additional pages to this Form CIQ as necessary. A. Is the local government officer named in this section receiving or likely to receive taxable income from the filer of the questionnaire? ☐ Yes ☐ No B. Is the filer of the questionnaire receiving or likely to receive taxable income from or at the direction of the local government officer named in this section AND the taxable income is not from the local governmental entity? ☐ Yes ☐ No C. Is the filer of this questionnaire affiliated with a corporation or other business entity that the local government officer serves as an officer or director, or holds an ownership of 10 percent or more? ☐ Yes ☐ No D. Describe each affiliation or business relationship.
6	_____ _____ Signature of person doing business with the governmental entity Date

Adopted
11/02/2005

BIDDER REMINDER LIST:
REQUESTED DOCUMENTATION INCLUDED?
ORIGINAL AND ONE (3) COPY INCLUDED?
ALL BLANKS COMPLETED ON THIS BID FORM?
COMPLETED COMPANY PROFILE/REFERENCES?
COMPLETED SIGNATURE?

City of Frisco GIS Software for Emergency Response
Request for Proposal (RFP)

General Information

Introduction

The City of Frisco, Texas is accepting proposals to purchase GIS software for Emergency Response mapping.

The goal is to provide map-based applications to the Police and Fire departments that display information from existing database systems and the Frisco GIS data in order to improve emergency response and communication. This system should include the following components/functional views:

1 Dispatch and Command Center application
2 Vehicle (mobile application for in-vehicle use)
3 Web based application for users outside the City of Frisco network firewall

It is the intent of the City of Frisco to establish a mutually beneficial relationship with the selected vendor who is committed to providing solutions to meet all current and future requirements for the City's GIS Software needs. Our City is growing in size and technical expectations, and we require that the successful vendor invest into their product line to ensure functionality, productivity, and technical efficiency of current and future versions. The successful vendor will work closely with designated City personnel to deliver, install, implement, train, warranty, and support a total package.

Background

The City of Frisco is located approximately 20 miles north of downtown Dallas along the Dallas North Tollway and SH 121, and covers area in both Collin and Denton County. The population estimate as of January, 2008 for Frisco is approximately 98,000 and growing at the rate of roughly 15% annually. The City occupies approximately 71 square miles and has an expected build-out population of roughly 250,000.

Currently, we do not have a system that meets the functional and technical requirements set out in this document. The proposed software must have the ability to display information from the City of Frisco's existing systems:

GIS System – ESRI in Redlands, California
Fire Records Management – Firehouse Software in Urbandale, Iowa
Police CAD - Integrated Computer Systems in McKinney, Texas
SharePoint 2007 – Microsoft in Redmond, Washington

The City of Frisco GIS group utilizes the ArcGIS 9.3 product suite by ESRI. To be selected, the City requires the proposing vendor to have an existing partnership or working relationship with ESRI. The proposing vendor must also prove a commitment to maintain currency with the ESRI product lines and future direction.

The City has extensive GIS data layers that can be used in a mapping application. A subset of their existing data layer details that is relevant to this project is listed below. Cooperation between the GIS group and the selected vendor to obtain necessary map data is expected and required as part of the working relationship. Third party GIS data for the base map layers is not acceptable.

Current GIS layers:

-Streets (routing capable)
- Street annotation
-Alleys
-Railroads
- Address points
-Parcels
- Building footprints
- Police beats
- Fire districts
- Water hydrants
- Water mains
-Schools
- City facilities
- City limits
- County line
-Subdivisions
-Parks
-Points of interest (hotels, medical facilities, etc.)
- Aerial photography
-Contours
-Pictometry

GIS layers in progress:

-Surrounding city streets data
-Surrounding city and county boundaries
- Firehouse occupancies
-Fire inspection features (fire department connections, knox box, etc.)
-Detailed building structures

The City of Frisco dispatches out of a central PSAP at the Police headquarters with a backup facility at a Central Fire Station Emergency Operations Center. There are 45 police vehicles and 35 fire vehicles using Panasonic Tough book computers. Each mobile data computer (MDC) connects to the City of Frisco network using Verizon CDMA wireless cards.

Required Submittals

In addition to the material included in the City of Frisco RFP document, each proposal must follow the format described in this section. Any proposal which does not adhere to this format may be eliminated from further consideration at the discretion of the City of Frisco.

Section 1: Title Page

The title page shall include the proposal number, GIS Software for Emergency Response and the name of your organization and shall be signed by an officer of your organization authorized to bind the organization in contacts.

Section 2: Table of Contents

Provide page numbers for the beginning of each section of your proposal.

Section 3: Executive Summary

Provide a brief description of the following areas of your company and all third-party vendors proposing to work on this project, including:

1 Experience with similar projects of relevant scope
2 Stability and growth of the organization
3 Product integration
4 Product development standards
5 Service to be performed
6 Exceptions to the proposal
7 Understanding of the system requested and differentiating highlights of your proposal

The Executive Summary shall not exceed 3 pages in length.

Section 4: Company Background

Provide a brief history of your company and all third-party vendors included in this proposal. Include information such as when it was founded, types of software developed and sold, number of active installations of the proposed product, name of parent and subsidiary company(s) or owners, if privately owned, etc.

Section 5: Implementation Team Background

Please provide résumés and work history of each member of the proposed implementation team, including any third party providers. The successful vendor will be required to execute a contract identifying these specific team members by name as those that will perform the proposed services. Any variation in proposed team members must be accepted by the City of Frisco in writing.

Section 6: Requirements

The proposer must respond to each requirement as listed in the attached Requirements Documentation Worksheet. The proposer shall address the ability to provide for each requirement, and specifically note if exception is taken to the ability to provide that requirement.

Do not modify, add, delete, or reformat any portion of the requirement list outside of the Response column and the Comment column. Any modification, addition, deletion, or reformatting of the list will be taken as an attempt to circumvent the response process, and may lead to disqualification of the vendor.

Section 7: Pricing

The proposer must detail the items below that are required to operate the system as described in the proposal. Do not include cost for hardware.

- List itemized software price using Component Licensing Guide below.
- List maintenance price and when initial support payment is due.
- List itemized services price including installation, training, implementation, travel and per diem.
- List cost for integration services with existing CAD system (ICS CAD).
- List any optional features separately and include an explanation of those features.
- Include an estimate to analyze data from the following sources to ensure routing/AVL functionality: City of Frisco GIS streets layer, MSAG, 9-1-1 database.

Component Licensing Guide

This system should include pricing for the following components/functional views:

1. **8** Dispatch and Command Center application licenses. This includes 2 command center and 6 dispatch seats at PD with plan to utilize the dispatch seats as failover licenses at another site in the event of a catastrophic failure at PD.

2. **81** Vehicle licenses (mobile application for in-vehicle use). This includes 35 Fire, 45 Police vehicles and one mobile command unit.

3. **10** concurrent Web based application for users outside the City of Frisco network firewall

Please make every attempt to match the licensing numbers required above and note if your pricing model differs from the guide.

Section 8: References

The proposer must furnish references for at least five (5) municipal or county customers for whom they have provided similar system within the past three (3) years. Contact information, including names and titles of customer contacts, telephone numbers, email addresses and information about the software installed at the reference site should be included. All references must currently utilize the Automated Vehicle Location/Routing features of the map software.

Section 9: Implementation

Describe plan to install the software including time frames, consulting hours required and cost. Provide detailed hardware requirements including specifications for servers, workstations and peripherals. Include plan for GIS data cleansing and testing. Describe the plan to display existing CAD vendor data. Identify any periods of downtime where normal input, update and circulation activities may not be performed.

Section 10: Training

Describe the training necessary for each level of staff: administrators, IT/GIS, users. Include the location of the training, number of individuals per class and time required. Provide a list of training materials included in the price and your strategy for keeping it updated. Include location of any electronic documentation that is available.

Section 11: Maintenance and Support

Provide a brief description of your company's service and support philosophy. Include a description of help desk services, support hours of operation and online tools. Describe the warranty and/or maintenance agreement and how upgrades are handled. Provide plan to support any required hardware including scanners and portable printers. Estimate how much city FTE staff time will be required annually for ongoing system management and computer operations for the proposed system. Include if there is any remote support of the system via VPN, telnet, webex or other methods of allowing the vendor staff to remotely troubleshoot, install upgrades, or resolve system problems.

Section 12: Technical Architecture

Describe the minimal and recommended network requirements for the proposed software. What are the minimal and recommended database requirements? What are the minimal and recommended server requirements? What are the minimal and recommended desktop (client) requirements? The City has a preference for a Microsoft Internet Explorer 7.0 or higher browser interface; what issues, problems, challenges or opportunities does this preference present? The City has a history supporting and a preference for a Microsoft SQL Server relational database management system. If the proposal deviates from these preferences, clearly delineate the assumed support of any other proposed solution.

Requirements Detail

Each proposer must indicate their ability to provide a system which meets or exceeds each defined requirement by indicating in the Response field one of the following response codes:

AC The software requirement is available currently in production (i.e., fully implemented and in use) and is provided within the proposed solution “Out of the box”.

FR The software meets the requirement in a planned future release or with customization.

3P The software requirement is met by a third party.

NA The software requirement is not available in the software.

Requirements Comment Column

Additional comments are allowed and should be placed next to the Response code. Please use this column to add clarity to your responses. If the space in the comment column is not adequate to clarify your response, please include the extended comments in a clearly labeled attachment and use the Comment field to refer to the attachment. In any attachments, please clearly cross-reference your Comments by using the requirement number. ***Any false or misleading information will subject the vendor’s proposal to immediate disqualification.***

The proposed software must meet the requirements listed below in all three software product components (Dispatch/Command Center, Vehicle and Web Enabled Software) unless otherwise noted. If any requirement is not available in one of those functional areas, indicate it in the Comments field and do not mark the requirement as AC.

1.0	Functional Requirements	Response	Comments
1.0500	GIS MAP INTERFACE FEATURES		
1.0501	System uses existing City of Frisco GIS data (in native NAD83 North Central Texas State Plane coordinate system) for the base map.		
1.0502	System can display aerial photography and any other GIS data with customizable icons in the map interface.		
1.0503	System allows the user to zoom in and out of the map by dragging a square over the area or clicking a button.		
1.0504	System shows a compass indicating North on all maps.		
1.0505	System shows a scale bar on all maps.		
1.0506	System provides capability to measure length and area in the map interface in various common units of measure (feet, miles, kilometers, square feet, acres, etc.).		
1.0507	System provides capability to identify individual map features for additional attribute data associated with each feature.		
1.0508	System provides capability to customize the legend.		
1.0509	System provides a method to link from map features to one or more documents (such as PDF, Visio, jpeg, URL, etc.).		
1.0510	System provides a method to dynamically mark up the map with text and shapes and publish the data out to all other users of the system in real time.		
1.0511	System has search capabilities across multiple GIS data layers.		
1.0512	System must geocode using a composite address locator based on City of Frisco GIS data.		
1.0513	System provides ability to return map coordinates at a selected map location.		
1.0514	System provides a method to link from an icon on the map interface to a video streaming website.		
1.0515	System provides method to save previous searches.		
1.0516	System provides method to search by key word on any map contents or labels. (ex: hazardous materials or store name in a shopping mall)		
1.1000	**INTEGRATION WITH EXISTING SYSTEMS**		
1.1001	System must be developed with the ESRI ArcGIS 9.3 product suite.		
1.1002	System must be able to access GIS data from any of the following: an SDE geodatabase, a personal geodatabase, a file geodatabase.		

1.1003	System can display textual 9-1-1 call data onto a GIS mapping interface. (Dispatch only)		
1.1004	System can display Call For Service (CFS) data from the existing CAD system (ICS CAD) onto a GIS mapping interface.		
1.1005	System provides a method to read from external database sources.		
1.1006	System can consume web services to display external GIS feature data or textual data in the mapping interface. For example: weather data		
1.1007	System provides tool or application to facilitate data synchronization between server and mobile units.		
1.1008	System integrates with an Emergency Notification System (third party or integrated into proposed solution) to determine a call list from a map and execute the call notification.		
1.1500	**PICTOMETRY INTEGRATION**		
1.1501	System can access and display the City of Frisco Pictometry imagery and data.		
1.1502	System can display Pictometry with the ability to rotate the image from each of the four cardinal directions (EWNS).		
1.1503	System can display Pictometry with the ability to take measurements (such as distance, area and height) over the images.		
1.2000	**AVL/ROUTING**		
1.2001	System has Automatic Vehicle Location (AVL) functionality allowing user to view all equipped vehicles. Vehicle information should be able to be labeled and symbolized.		
1.2002	System has the ability to “play back” AVL data based on selected criteria including time and vehicle id. (Dispatch only)		
1.2003	System can route incoming Calls For Service (CFS) locations from CAD based on vehicle location and user defined map coordinates.		
1.2004	Routing capability should include point to point routing, multi-point routing and dynamic routing around user defined impedances.		
1.2005	Routing functionality should include turn by turn directions.		
1.2006	System has the ability to perform vehicle routing using existing City of Frisco GIS Data		
1.2007	System includes services and/or software to analyze the City of Frisco GIS data for AVL functionality and provide feedback for necessary updates. Describe method.		

1.2500	**HAZARDOUS MATERIALS (HAZMAT) TOOLS**		
1.2501	System has the ability to perform ALOHA Chemical Plume modeling. Resulting model should be shared with all other system users via the map interface.		
1.2502	System must integrate the standard Emergency Response Guide (ERG) for quick access to hazardous material information.		
1.3000	**USABILITY REQUIREMENTS**		
1.3001	System used in mobile vehicles utilizes touch screen functionality and large easy to read labels, buttons and controls to facilitate quick navigation. (Vehicles only)		
1.3002	System employs tabs, layers and user configurable layouts to prevent screens from becoming too cluttered.		
1.3003	System provides method to navigate back to previous screen.		
1.3004	System provides method to print current screen or map view.		
1.3005	System provides method to print a complete image of the map or floor plan.		
1.3500	**SECURITY AND ACCESS**		
1.3501	System allows integration with the existing Active directory authentication where user access is required.		
1.3502	System creates audit records of changes made to the system.		
1.3503	System controls permission to delete audit records.		
1.3504	System supplies user definable security features, including, but not limited to: password access, user group security rights, field-level rights, record-level security rights, and control permissions to allow and prevent information editing and deletion.		
1.3505	System is assignable on user-definable levels based on map layers (ie. allows to specify information for Police only)		
1.3506	Ability to allow users to access all required systems through a customizable web portal.		
1.3507	Ability to require users to change their passwords on a periodic basis.		
1.3508	Maintain a log of unauthorized attempts to access the system. Security log should be accessible at any time through a report request or online query.		

1.3509	Email the administrator of any incident of over 5 unauthorized attempts by any one user.		
1.3510	The system can provide a full audit trail of all transactions and provide time stamp and User ID.		
1.3511	Support profile based privileges such that database access to a named individual or defined group having the same functional role, class, or organizational assignment.		
1.3512	System is capable of protecting data from accidental or unauthorized destruction.		
1.3513	System is able to move records near-line or off-line and have protocols built in to ensure that the media is refreshed and the bit error rate is corrected on a regular basis.		

2.0	Technical Requirements	Response	Comments
2.0001	Product uses Microsoft SQL Server database 2005.		
2.0002	System provides maintenance features that will periodically review the tables and identify any data inconsistencies and incomplete records and exception reports.		
2.0003	Include capabilities to protect against loss of system data during system failure.		
2.0004	The product is fully operational on the latest Microsoft desktop operating system, including Vista.		
2.0005	Web-enabled applications can be accessed using Internet Explorer 6 or later version.		
2.0006	Product is accessible over a TCP/IP Ethernet network.		
2.0007	Product operates on the latest Microsoft Windows Server 2003 platforms in a high availability environment with redundant servers including database.		
2.0008	System provides for Secure Sockets Layer (SSL) encryption.		
2.0009	System protects data from accidental or unauthorized destruction.		
2.0010	Ability to pull information using web services from external systems to display in map interface.		
2.0011	Ability to connect through ODBC to external systems and display in map interface.		
2.0012	Ability to push information to other systems using web services.		
2.0013	System updates information from third party software automatically at specified intervals. Describe proposed method to update from ancillary systems.		

2.0014	System utilizes the latest Adobe Reader or Visio Viewer for viewing linked documents in their native format.		
2.0015	System provides method to easily back up data for disaster recovery/data integrity. Describe method.		
2.0016	System provides method to normalize database and set up format requirements for consistent data entry.		
2.0017	System utilizes an open database structure with data dictionary for external reporting services.		
2.0018	System has ability to export information to Excel.		
2.0019	System capable of providing GIS map refresh within 3 seconds over a wireless card.		
2.0020	System provides method of storing large sized files locally on the laptops to enhance response time and avoid unnecessary network traffic. Describe this method and which items can be stored in this way.		
2.0021	System provides method to transfer a subset of the information to a memory stick for transfer to other vehicles or third parties. Describe this functionality.		

Proposal Evaluation

A City evaluation committee will evaluate the information provided by vendors in response to the criteria established below. The scores of all evaluators will be used to determine the ranking of each proposal and a recommendation will be forwarded to the City Council for their review. Award of contract will be made by the City Council and will be made in the best interest of the city and shall, therefore, be considered final.

Preference will be given to solutions (partnerships i.e. hosting companies, software companies and implementation providers) that have provided similar and related services in organizations of similar size and complexity together as a proven solution.

During the evaluation process, the City reserves the right, where it may serve the City's best interest, to request additional information or clarifications from proposers, or to allow corrections of errors or omissions. At the discretion of the City, firms submitting proposals may be requested to make oral presentations as part of the evaluation process.

The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this request for proposals, unless clearly and specifically noted in the proposal submitted and confirmed in the contract between the City and the firm selected.

Evaluation Criteria

This procurement will comply with applicable City of Frisco policy. The successful proposer will be selected on a rational basis, with both qualifications and price considered in the selection process. Evaluation factors outlined below shall be applied to all eligible, responsive proposers in comparing proposals and selecting the successful vendor. Award of a contract may be made without discussion with proposer after proposals are received. Proposals should therefore be submitted on the most favorable terms.

The following criteria are listed in their order of importance and will be considered in making an award:

-Conformance with RFP guidelines and submittal requirements
-Responses to Functional Requirements including use of City of Frisco GIS data layers
-Compatibility with the City of Frisco's desired current and future technology architecture, expertise, future strategy and responses to
Technical Requirements
-Public Sector Experience and References
-Implementation Strategy and Plan
-Total cost of ownership over five years
-Compatibility with the City of Frisco's desired terms and conditions
-Software Demonstrations and Implementation Services Interviews (optional)
-Site Visits (optional)

Each proposing firm is responsible for submitting all relevant, factual and correct information for evaluation of the above criteria with their proposal. The evaluation committee will evaluate each proposal based on the data submitted. If additional information is submitted with the proposal, the proposing firm must clearly make reference to it in the appropriate location in the proposal.

Proposals should be returned in sufficient time so as to be received on or before 2:00 P.M., **(10/10/08).** It is the proposer's responsibility to ensure that they have received any and all addenda related to the proposal. It shall be the sole responsibility of the respondent to insure that their proposal is received by the Purchasing Manager within the time limit indicated. Late proposals will not be considered.

Costs Incurred in Responding

All costs directly or indirectly related to preparation of a response to this RFP, any oral presentations required to supplement and/or clarify a proposal, and/or reasonable demonstrations which may be, at its discretion, required by the City shall be the sole responsibility of and shall be borne completely by the proposer.

Proprietary Information

The City of Frisco considers all information contained within the packet to be subject to the Open Records Act and nonproprietary in nature.

Response Instructions
Eight copies of the proposal should be returned in a sealed envelope bearing the name and address of the respondent and the Request for Proposal Number. The cost proposal sheet should be submitted in a separate envelope attached to the proposal and bearing the RFP number. Your proposal may be mailed or hand delivered to:

City of Frisco
Tom
Johnston
Purchasing Manager
6101 Frisco Square Blvd.
Frisco, Texas 75034

Late proposals will not be considered.

Proposal Acceptance Period

All proposals must include a statement that they are valid for a minimum period of 90 days subsequent to the RFP closing date.

Additional Information

The City reserves the right to require additional technical and pricing information during the evaluation period.

Each proposal must designate a person(s) who will be responsible for answering technical and contractual questions.

Negotiations

The City reserves the right to negotiate all elements of a proposal to ensure that the best possible consideration be afforded to all concerned.

The City reserves the right to reject any or all proposals and to re-solicit for proposals in such an event.

Release of Information

Submission of information by the proposer shall not be released by the City during the proposal evaluation process or prior to contract award.

Contract Incorporation

Proposers should be aware that the contents of the successful proposal will become a part of any subsequent contractual document that may arise from this RFP. Failure of a proposer to accept this obligation may result in the cancellation of any award.

Rights and Remedies

The rights and remedies of the City provided herein shall not be exclusive and are in addition to any other rights and remedies provided by law or under any subsequent contract.

Contract Payment/Compliance Statement

The contract or engagement letter shall be prepared by the vendor, under the direction of the City, and shall incorporate all applicable provisions. Payment for all services other than those described as "special projects" will be made based on an all-inclusive, not-to-exceed fee estimate, with progress payments as mutually determined to be appropriate. These payments shall be based upon completion of phases of the work.

Publicity

Any publicity, news releases, and/or advertising pertaining to this RFP and/or the awarding of any contract relating to the RFP may not be made without prior written approval of the City.

PROPOSER WARRANTIES

A. Proposer warrants that it is willing and able to comply with State of Texas laws with respect to foreign (non-state of Texas) corporations.

B. Proposer warrants that it is willing and able to obtain an errors and omissions insurance policy providing a prudent amount of coverage for the willful or negligent acts, or omissions of any officers, employees or agents thereof.

C. Proposer warrants that it will not delegate or subcontract its responsibilities under an agreement without the prior written permission of the City of Frisco.

D. Proposer warrants that all information provided by it in connection with this proposal is true and accurate.

Signature of Official: _____
Name (typed): _____
Title:_____
Firm:_____
Date:_____

CITY OF FRISCO PURCHASING DIVISION

SIGNATURE FORM

City of Frisco GIS Software for Emergency Response

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all product/service upon which prices are extended at the price offered, and upon the conditions in the specifications of the Request For Proposal.

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination to control the price of product/service bid on, or to influence any person or persons to bid or not to bid thereon."

Name of Bidder:
_____

Address of Bidder:
_____

Telephone Number:_____ Fax:

_____E-mail address:

_____ By:

_____(print name) Cash Discount Terms:_____

Title: _____Federal ID #/SSN #:

_____

Signature: _____

Acknowledgement of Addenda: #1 ____#2____ #3 ____#4_____#5_____

City of Frisco Texas

GIS Software for Emergency Responses
Competitive Sealed Proposal No. 0809-079

October 10, 2008

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EXECUTIVE SUMMARY

The City of Frisco's emergency 9-1-1 software goals will be met by GeoComm using experience gained from over 500 public safety projects over the last 13 years. We will provide you with highly functional and easy-to-use software. In addition, our software support and maintenance services will ensure the City of Frisco is utilizing the most modern technology for years to come. Throughout this project and well into the future, our primary focus will be to ensure your ultimate satisfaction with our products and services.

Our primary project goal is to supply software and services that meet and surpass the needs of the City of Frisco. Specifically, GeoComm will provide you with:

- GeoLynx 9-1-1 for plotting wireline and wireless Phase I and Phase II calls.
- GeoLynx AVL to track equipped vehicles.
- GeoLynx Mobile for in-vehicle mapping.
- GeoLynx EOC for a common operating picture enabling you to view 9-1-1 calls, CAD incidents, and AVL from anywhere there is Web access.
- Implementation services to setup and install each of the software components and provide technical training for your staff. Implementation services also include CAD interface development for viewing CAD incidents in GeoLynx 9-1-1.
- Software support and maintenance to ensure ongoing full software performance.

GeoLynx 9-1-1

The City of Frisco will benefit immediately from GeoLynx 9-1-1 using existing city GIS data. GeoLynx 9-1-1 is a fully integrated dispatch GIS software built on ESRI's latest ArcGIS Engine. This framework is the most current and future technology platform from ESRI. It will increase response rates by being easy-to-use, fully functional software with numerous features including:

- Drive time polygons and barrier routing to dispatch closest responders and concentrate search efforts based on drive time and distance.
- Integration of Pictometry technology offers additional location display functionality.
- Built-in basic hazard plume modeling and advanced ALOHA chemical plume modeling.
- Integrated electronic Emergency Response Guide (ERG) database with isolation protocol mapping.
- Hyperlink feature for users to reference related information.

GeoLynx AVL

The primary advantage for adding GeoLynx AVL to GeoLynx 9-1-1 is to enable users to view GPS-equipped vehicles in the field. This functionality adds greater capabilities for dispatching the closest vehicle and routing them along the shortest route to emergency locations.

GeoLynx Mobile

GeoLynx Mobile implemented in the City of Frisco vehicles will allow emergency service personnel to view locations of emergencies and have greater control of finding the quickest route to it.

Implementation Services

With GeoComm implementation services the City of Frisco will have a well managed project with regular communication throughout. . In addition to project management, implementation services include the following pre-installation services:

- An analysis to determine the synchronization rate of the city's GIS map data, MSAG, and 9-1-1 database for plotting 9-1-1 calls in GeoLynx 9-1-1 and routing vehicles using GeoLynx AVL.
- IP AVL implementation services to assist in evaluating the existing wireless communications infrastructure to determine the steps, software components, and network modifications necessary to efficiently and effectively transport AVL data between vehicles and GeoLynx 9-1-1/AVL.
- CAD interface development to ICS CAD for CAD incidents to plot on the GeoLynx 9-1-1 map. Developing a custom interface to your CAD system would allow your system users to have advanced functionality only available to those with a CAD interface. GeoLynx 9-1-1 contains an open API for seamless third-party integration.
- Software setup services to customize the look of the software to meet your expectations.

Software Support and Maintenance

After software installation, knowledgeable and experienced Technical Support Analysts will communicate frequently for software support and maintenance. The quality of GeoComm's software support and maintenance is measured by 95 percent of our software clients renewing software support and maintenance year after year.

In addition, as a valued software support and maintenance customer, GeoComm's software development team accepts and considers all customer software feature enhancement requests. Although, our software is not currently compliant with the following technical requirements from the RFP it is possible that it will be added to our software in future version releases through enhancement requests for consideration by customers like you. GeoComm takes exception to the following requirements from the RFP:

1.3502 System creates audit records of changes made to the system.

1.3503 System controls permission to delete audit records.

1.3508 Maintain a log of unauthorized attempts to access the system. Security log should be accessible at any time through a report request or online query.

1.3509 Email the administrator of any incident of over 5 unauthorized attempts by any one user.

1.3510 The system can provide a full audit trail of all transactions and provide time stamp and User ID.

1.3512 System is capable of protecting data from accidental or unauthorized destruction.

1.3513 System is able to move records near-line or off-line and have protocols built in to ensure that the media is refreshed and the bit error rate is corrected on a regular basis.

2.0009 System protects data from accidental or unauthorized destruction.

2.0015 System provides method to easily back up data for disaster recovery/data integrity. Describe method.

2.0017 System utilizes an open database structure with data dictionary for external reporting services.

2.0018 System has ability to export information to Excel.

GeoComm values our customer's software feedback and encourages software feature enhancement requests. We strive to meet our customer's software needs and do so by enhancing the software based on your requests. Received software enhancement requests are entered into our Customer Relationship Management (CRM) system. These requests are tracked and continuously reviewed by research and development.

Optional Software and Services

The City of Frisco may also choose to purchase GPS units for use in vehicles for GeoLynx AVL with either IP AVL option proposed or GeoLynx Sync for automated interoperable replication and propagation of your GIS data set used in GeoLynx 9-1-1 or both.

Why Choose GeoComm?

The City of Frisco will benefit by choosing GeoComm's proven software and related services. These software and services have been developed and refined over 13 years using our software development, GIS and consulting experience, specific to 9-1-1. Benefits to the City of Frisco include working with a vendor who:

- is experienced from implementing over 5,500 public safety software licenses in over 500 customer sites resulting in an extensive customer base of satisfied customers including customers such as:
  - City of Galveston, Texas
  - Sioux City/Woodbury County, Iowa
  - Greer County, Oklahoma
  - Itasca County, Minnesota
  - Washington County, Missouri
  - Benton County, Iowa
  - Jefferson County Emergency Communication Authority Board, Colorado
  - City and County of Honolulu, Hawaii
  - Henderson County, North Carolina

- is an ESRI business partner ensuring quality, industry-standard software built on globally leading GIS technology provided by ESRI .
- has additional software to meet future needs of the City of Frisco.
- continuously researches software trends and enhances software to meet the needs of customers.
- provides end-to-end project management and implementation and follows through for all requested applications.
- will provide project deliverables to fit the needs of the City of Frisco

Public Safety is all we do and we will apply our experience to this project. We deliver by being flexible, responsive, on the cutting edge of industry-related developments, and understanding of your needs. GeoComm looks forward to working with you on this important public safety project.

GeoComm, founded in 1995, is dedicated to the public safety and homeland security industry; it is all we do. A consulting, GIS, and software development firm, GeoComm knows the process to reach a goal is sometimes as important as the outcome. GeoComm partners with our customers to guide each step of the project and meet their objectives.

Over the last 13 years, GeoComm, a Minnesota-based company, has been a leading provider for mapped ALI software, GIS consulting and data development, and communications and operational consulting specifically for public safety.

Jointly owned and operated by Tom Grones, President/CEO, Dan Rudningen, Vice President of Sales and Marketing, and Mike Frericks, Business Development Director, GeoComm employs over 80 professionals accredited within their respective fields of communications engineering and GIS and software development. GeoComm's public safety understanding stems from real-life experience as call-takers, dispatch supervisors, emergency managers, police officers, county employees, and consultants to local governments.

Accurate GIS Data Development

In an advancing world with wireless 9-1-1 use at an all-time high and GPS functionality a common accessory, the importance of accurate GIS data is crucial. GeoComm understands there are attributes specifically desirable for GIS related to 9-1-1 and has standard procedures for ensuring those attributes are part of the data set delivered to our customers.

For over 13 years, GeoComm has been at the forefront of understanding and implementing GIS data for the advancement of the public safety industry. As an ESRI business partner, GeoComm uses the most sophisticated tools and techniques to build accurate map data at an affordable price. This data is specifically enhanced for locating 9-1-1 calls, CAD incidents, and RMS records. GeoComm's GIS services include complete addressing, MSAG and ALI database development, GPS data collection, and digital base map development.

Functional Public Safety Software

GeoComm has a unique understanding of incorporating GIS data within various geospatial applications, so our software functionality far exceeds that of our competition. Our GIS expertise paired with innovative software development creates a critical synergy of understanding and developing software to meet the needs of our customers. This is illustrated by our unrivalled longevity in the mapped ALI field with our first system installed and continuously running since July 1995, our leading role in the field of wireless call mapping with the first Phase II compliant 9-1-1 mapping system installed and running since October 2001, and our continued commitment to progressive and ongoing software refinements.

Our standing in the industry is further supported by our business relationship with ESRI, the global leader in GIS technology. This partnership offers products and services to exceed the expectations of our customers. GeoComm's staff is proficient in the complex development of value-added tools on ESRI-based software. We work to set industry standards for both data development and software accessibility and engineering.

GeoComm designs the GeoLynx Family of Products to bring GIS technology to the public safety industry. These products improve responsiveness, increase intelligent information, and support public safety staff and decision-makers on a daily basis:

- GeoLynx 9-1-1Dispatch GIS
- GeoLynx EOC Emergency Operations Center
- GeoLynx AVL Automatic Vehicle Location Extension
- GeoLynx Mobile Mobile Response GIS
- GeoLynx Stats Dispatch Analyst Extension
- GeoLynx ENS Emergency Notification System
- GeoLynx DMS E9-1-1 GIS Data Management
- GeoLynx Sync Interoperable Replication & Propagation

To those points, GeoComm has over 5,500 licenses of its public safety software installed in over 500 sites nationwide. Of that amount, over 2,300 licenses are of our premiere GeoLynx 9-1-1 Dispatch GIS System.

Comprehensive Consulting

GeoComm understands the details of PSAP and Emergency Management operations. Public Safety has a multitude of angles crucial to successful communication and integration. Our consulting team has years of experience developing and establishing standard operating procedures and public policies.

GeoComm works with you by sharing its expertise and knowledge of conventional radio improvement projects, full-fledged digital simulcast P25 compliant interoperable trunked technologies, all aspects of two-way radio, wireline and wireless 9-1-1, communications center consolidation, and all facets of other operations studies. GeoComm also provides all-inclusive GIS consulting services tailored to map data development and GIS maintenance procedures for implementation in a 9-1-1 environment.

Recognized E9-1-1 Solutions Provider

GeoComm's customer base ranges from small jurisdictions with one PSAP workstation to medium-sized jurisdictions with 30 PSAP workstations to large multi-jurisdictional metropolitan and regional areas. GeoComm's services have been provided to a growing number of clients nationally, including the nine-county area surrounding Kansas City governed by the Mid-America Regional Council (MARC); the large metropolitan Lee County, Florida (Fort Myers); the 22 PSAP 9-1-1 jurisdiction governed by the Association of Central Oklahoma Governments (ACOG); the two-county metropolitan area governed by Jefferson and Broomfield counties, Colorado; and the island of Oahu, Hawaii.

Customer Satisfaction

Customer satisfaction is our goal. As your partner on this project, GeoComm works for you.

> *"ACOG has many vendors for both technical and non-technical projects. Our business relationship with GeoComm is one of the most positive we have ever experienced. GeoComm is very responsive to both routine requests as well as special requests for information or technical changes. Because of our experience with GeoComm we have contracted with them for two major projects: developing a four-county regional data set and providing GeoLynx 9-1-1 to all 22 PSAPs in our jurisdiction. In addition, we have long-term GIS data and software maintenance contracts."*
> ***Steve Willoughby, Association of Central Oklahoma Governments Division Director***

Our approach to each project demonstrates our dedication to the needs of our customers. Our project management approach is flexible enough to meet every concern and proven enough to ensure you will be provided with a well-executed project.

Implementation Team

The GeoComm project team will be lead by an established project management team: Scott Wolhart, Assistant Technical Services Manager, Nate Ekdahl, Assistant GIS Services Manager, and Lori Clements, Account Manager.

The following list of key project team members have been assigned to the City of Frisco project. This team has worked closely together on many GeoComm public safety projects.

Scott Wolhart – Assistant Technical Services Manager – 5 years

Nate Ekdahl – Assistant GIS Services Manager – 8 years

Lori Clements – Account Manager – 1 year

Jake Anderson – Implementation Supervisor – 3 years

Adam Stokstad – GIS Supervisor – 4 years

Mark Doroff – Implementation Specialist – 4 years

Matt Besser – Implementation Specialist – 2 years

Laura Loberg – Implementation Specialist – 3 years

Kari Abraham – Implementation Specialist – 1 year

Ryan Schrofe – GIS Specialist – 1 year

Sophia Gossman – GIS Specialist – 1 year

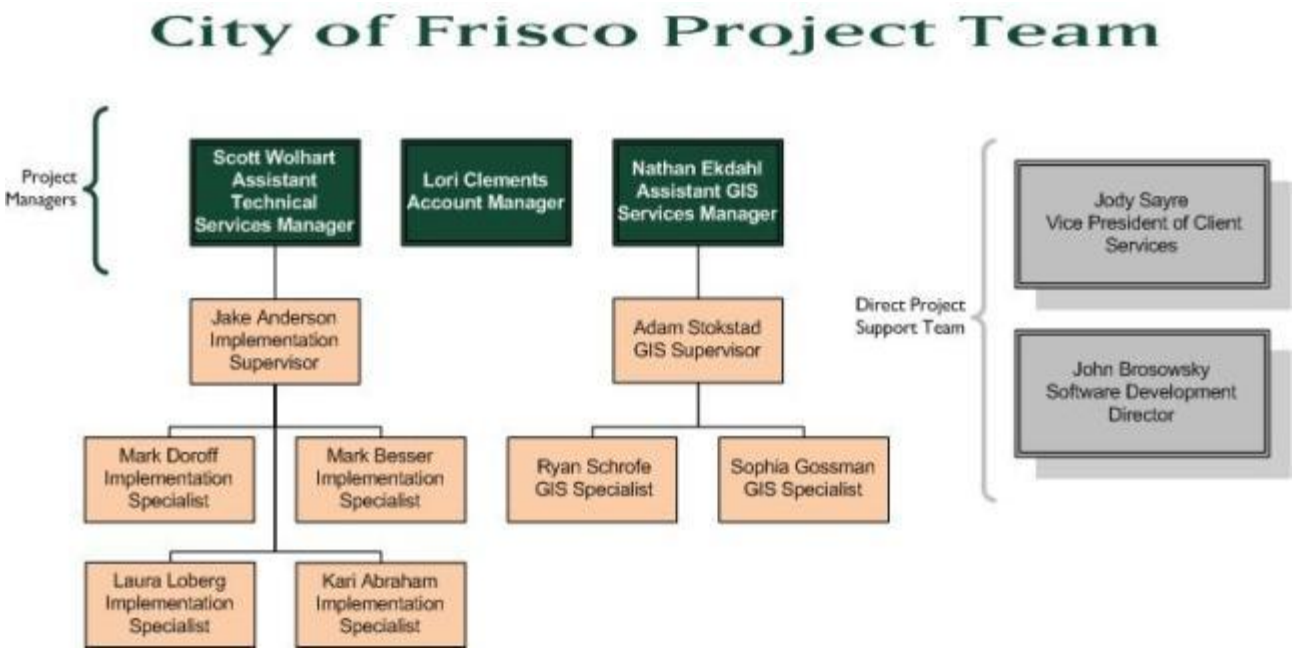
Jody Sayre – Vice President of Client Services – 10 years

John Brosowsky – Product Development Director – 11 years

Scott, Nate, and Lori will be available throughout the project to:

- Provide project status reports
- Provide status updates on the project schedule and milestones
- Manage the overall schedule for the project to be completed within the agreed upon timeframe
- Ensure all elements of the project, within GeoComm's control, are completed on time and according to the clients expectations
- Define, communicate, and fulfill contractual obligations, goals, and breaking complex project items into manageable parts
- Facilitate meetings with the City of Frisco, GeoComm project team, and other project stakeholders
- Coordinate and participate in communication between the City of Frisco and the GeoComm project team
- Answer questions posed by the City of Frisco
- Coordinate and follow-up on inquiries and requests pertaining to the project

Following is a diagram of GeoComm's proposed project team. The following pages contain a resume for each project manager and the team members that will assist the project managers throughout this project.



Scott Wolhart

Assistant Client Services Manager

Scott's experience includes:

- Developing, gaining approval of, and implementing goals, objectives, and budgets for the Implementation and Customer Support operations of GeoComm's Client Services Department
- Policy and procedure development for customer service support and implementation staff
- Consistently working with customers and consultants to manage schedules and ensure project deliverables are met
- Ensuring implementation and customer support services are delivered in a timely manner and exceed customer expectations
- Understanding the scope of all active projects, communicating with customers and staff regarding scope requirements and expectations, and assuring the installation and training activities result in successful project completion
- Extensive customer training experience and working in collaboration with professional trainers to improve training services offered by GeoComm on all products
- Manages an average of 60 active implementation projects
- Personally implemented 85 E9-1-1 dispatch mapping systems in 20 states
- Developing and maintaining all internal operating procedures manual, documents, and power points as new process and procedures are implemented in his area
- Coordinating the purchases and delivery of third party products needed to fulfill project deliverables, and communicates with third party vendor staff to ensure timely delivery of required products
- Coordinating business partner installations by assigning implementation and training services, attending on-site meetings, and establishing communications procedures for project management
- Seven years of experience in Information Systems

Professional Experience

GeoComm

St. Cloud, Minnesota

- Assistant Client Services Manager
- Implementation Specialist

St. Cloud State University

St. Cloud, Minnesota

- Computer Lab Supervisor

TEC Interface Systems

Waite Park, Minnesota

- Quality Assistant

Education

St. Cloud State University

St. Cloud, Minnesota

- B.S. in Business Computer Information Systems

Nate Ekdahl

Assistant GIS Services Manager

Nate will be responsible for monitoring the day-to-day GIS development of project deliverables. He will work closely with your project team to ensure quality deliverables and a timely project completion. He specializes in GIS data development and maintenance of jurisdictions of varying size and complexity.

Nate's experience in overseeing the development of quality GIS data for emergency environments include:

- Eight years of E9-1-1 and GIS experience including: data development, data collection, and project management
- Extensive, current knowledge of ESRI products
- Analyzing GIS workflows and revising development processes.
- Project planning and developing workflows, data quality assurance, and data processing procedures.
- Determining the status of customer's GIS staff and end-user needs resulting in project work plans.
- Reporting to local advisory committees and management teams on all aspects of on-going projects.
- Developing, implementing, and refining GIS QA/QC processes.
- Ensuring processes and procedures are current with technology and meeting the needs of each project.
- Developing and refining fieldwork processes to provide more accurate data gathering and attribute processing.
- Providing on-site project management, attending on-site customer meetings, and field-verifying GIS data
- Processing and quality checking field data by monitoring and implementing existing quality control programs and processes
- Efficiently managing the progress and quality control of new and continuing GIS 9-1-1 projects
- Providing on-site project management, attending on-site customer meetings, and verifying field mapping data
- Managing GIS project schedules to ensure timeliness and quality deliverables
- Advanced ability to perform GIS related procedures
- Developing enhanced GIS processes and procedures for the Client Services Department
- Coordinating and participating in communications between customer and various agencies

Professional Experience

GeoComm

St. Cloud, Minnesota

- Assistant Client Services Manager
- GIS Supervisor
- GIS Specialist

Education

St. Cloud State University

St. Cloud, Minnesota

- B.A. in Geography
- Minor in Community Development

Alexandria Technical College

Alexandria, Minnesota

- A.A.S in Geographic Information Systems

Supervisor/Manager Training Program

- St. Cloud Area Chamber of Commerce

Highlighted Projects

Project size ranges from small city and county projects to large-scale projects. Each of the following projects included Greg analyzing, consulting on, and implementing GIS systems to work in a 9-1-1 environment.

- Oahu County, Hawaii
- 9-1-1 Association of Central Oklahoma Governments
- Yell County, Arkansas
- Yolo County, California
- Dickenson County, Virginia

Lori Clements

Account Manager

Lori's experience includes:

- Coordinating with customers on issues in regard to the communication plan and scope of services for all projects
- Understanding all GeoComm products, features, benefits, capabilities, and solutions
- Submitting requests for proposals containing necessary background data
- Participating in Trade Shows as appropriate
- Performing general management and coordinating activities on projects
- Dynamic, professional sales executive with 11 years of solid sales experience in the geospatial industry
- Exceptional people skills with ability to quickly establish customer rapport and maintain long-term relationships
- Proven ability to effectively work on multiple tasks, meeting deadlines, and easily adapting to changing priorities
- Skillful listener with ability to thoroughly understand client needs proposing winning solutions
- Creative problem solver with the ability to propose innovative ideas, programs, and solutions
- Successfully managed over 1000 customers from diverse industries within territory and several named national accounts
- Consulting with clients to understand business needs, tailoring solutions from a combination of products to meet industry specific needs
- Negotiating numerous enterprise deals with solutions including Web services, enterprise web, and client/server solutions
- Conducting numerous executive level and technical presentations, seminars for audiences of more than 300 people, and tradeshows within various industry segments
- Knowledgeable in ArcGIS core product suite / ArcGIS Business Analyst / Business Analyst online / ArcWeb Services, Microsoft Office *(Word, Excel, Access, PowerPoint, Outlook*, Pivotal CRM, SAP, Miller Heiman Strategic selling, Achieve Global © PSS, and Legacy Arc/Info and Extensions / Basic AML / ArcView / MSWord / PowerPoint
- Performing project oriented GIS technical services for governmental and commercial contracts including geocoding, address updates, and developing and updating GIS data
- Directly corresponded with the contracting organization as project lead, adhering to timelines without supervision

Professional Experience

GeoComm

St. Cloud, Minnesota

- Account Manager

SC Design Group

- Business Operations Manager

ESRI – San Antonio Regional Office

San Antonio, Texas

- Senior Sales Executive

Office of Research Services UT Tyler

Tyler, Texas

- GIS Technician

Education

UT Tyler

Tyler, Texas

- Masters of Public Administration with Emphasis in GIS

Texas A&M University

College Station, Texas

- Bachelor of Landscape Architecture

Jake Anderson

Implementation Supervisor

Jake's experience includes:

- Analyzing systems and advising customers of best technical solutions
- Supervising the installation and testing projects for the complete GeoComm Family of Products
- Coordinating assigned installation projects by fully understanding project scope; communicating with customers and GeoComm staff regarding installation requirements, expectations, and preparedness steps to assure sites are prepared for a successful installation
- Installing and testing the complete GeoComm Family of Products
- Resolving technical support issues in a timely fashion
- Testing software releases and related equipment
- Training for system administration facilitator
- E9-1-1 Dispatcher Training
- Monitoring and managing the progress and quality control of new and continuing projects
- Supporting technical support personnel pertaining to customer issues and schedules
- Project planning, coordination, and quality control
- Preparing preliminary diagram of the installation configuration, including ALI controllers, CAD systems, CPE equipment, mapping equipment, etc.
- Producing training materials, including training outlines
- Documenting and communicating project progress
- Completing acceptance test plans with customers
- Leading wrap-up session which includes; review of installation status, answering final questions, agreeing on a communication plan, presenting information on how to contact GeoComm for software and map development assistance

Professional Experience

GeoComm

St. Cloud, Minnesota

- Implementation Supervisor
- Implementation Specialist

Canon Business Solutions

West – Phoenix, Arizona

- Post Sales Systems Analyst

Seren Innovations, Inc.

Waite Park, Minnesota

- Technical Service Representative – Internet

Education

St. Cloud State University

St. Cloud, Minnesota

- B.S. in Business Computer Information Systems

Adam Stokstad

GIS Supervisor

Adam will provide the GIS team's supervision for this project. This responsibility includes leading project kickoff meetings, assisting with ongoing training of current and new employees, monitoring schedules and providing updates to the project team, providing timely project status reports, and ongoing QA/QC of data.

Adam's experiences includes:

- Ensuring QA/QC standards are met.
- Proficient in ArcGIS 9.3 at the ArcInfo/ArcView level
- Coordinating and supervising over 70 GIS 9-1-1 based projects
- Efficiently managing the progress and quality control of new and continuing GIS 9-1-1 based projects
- Advanced ability to perform GIS related procedures
- Designing, creating, and maintaining ArcGIS geodatabases for customers
- GPS data collection using ArcPad
- Processing and quality checking field data
- Assisting in training GIS Specialists to collect GPS data using ArcPad
- Setting up and testing GIS data in GeoComm software
- Developing enhanced GIS processes and procedures for Client Services department
- Coordinating and participating in the communications between customer and various agencies
- Utilizing analysis procedures to ensure accuracy of map data, MSAG, and 9-1-1 databases
- Assisting in training new GIS Specialists
- Coordinating with customers on issues regarding the scope of services for all projects
- Maintaining a working knowledge of aerial photography and the different formats
- Creating mosaics and image catalogs from existing aerial imagery
- Working with customers and residents to ensure successful project completion to the customer's satisfaction
- Coordinating multiple ArcGIS based projects
- Creating GIS map data for use within E9-1-1 software programs
- Coordinating with customers on issues regarding their scope of services for all projects

Professional Experience

GeoComm

St. Cloud, Minnesota

- GIS Supervisor
- GIS Specialist

Education

University of Wisconsin

Eau Claire, Wisconsin

- B.A. in Comprehensive Geography; Emphasis in Natural Resource and Land Management

Nicolet Area Technical College

Rhinelander, Wisconsin

- Transfer Credits

Highlighted Projects

Projects include the Midland Emergency Communications District (MECD) in Midland, Texas. Included:

- reviewing data to correlate with GeoComm standards
- coordinating with the county GIS department
- setting up the dispatch GIS software
- completing an analysis of the map data, Master Street Address Guide (MSAG), 9-1-1 database and developing the final report

Mark Doroff

Implementation Specialist

Mark's experience includes:

- Analyzing systems and advising customers of best technical solutions
- Installing and testing the complete GeoComm Family of Products
- Coordinating assigned installation projects by fully understanding project scope
- Communicating with customers and GeoComm staff regarding installation requirements, expectations, and preparedness steps to assure sites are prepared for a successful installation
- Resolving technical support issues in a timely fashion
- Training for system administration facilitator
- Testing software releases and related equipment
- E9-1-1 dispatcher training
- Monitoring and managing the progress and quality control of projects
- Supporting technical support personnel with customer issues and schedules
- Project planning, coordination, and quality control
- Installing and monitoring AVL systems and interfaces
- Preparing preliminary diagram of the installation configuration, including ALI controllers, CAD systems, CPE equipment, Mapping equipment, etc.
- Producing training materials and training outlines
- Documenting project notes, installation reports, process changes, trouble tickets, and status reports
- Completing acceptance test plans with customers
- Completing successful installations of GeoComm systems at customer sites, including cabling, hardware setup, networking, software installation, and post installation follow-up
- Conducting on-site customer training for the use of GeoComm products individually or in groups
- Maintaining a working knowledge of Microsoft Office applications, PC operations, and other related software applications
- Maintaining a working knowledge of current GeoComm software
- Assisting with software setup and support when needed, and validates and adjusts product setups to accommodate successful implementations
- Leading wrap-up session which includes review of installation status, answering final questions, agreeing on a communication plan, presenting information on how to contact GeoComm for software, and map development assistance

Professional Experience

GeoComm

St. Cloud, Minnesota

- Implementation Specialist

Education

Ridgewater College

Willmar, Minnesota

- Diploma in Wireless Communications

Matt Besser

Implementation Specialist

Matt's experience includes:

- Analyzing systems and advising customers of best technical solutions
- Installing and testing the complete GeoComm Family of Products
- Coordinating assigned installations by understanding project scopes
- Communicating with customers and GeoComm staff regarding installation requirements, expectations, and preparedness steps to assure sites are prepared for a successful installation
- Resolving technical support issues in a timely fashion
- Testing software releases and related equipment
- Training for system administration facilitator
- E9-1-1 dispatcher training
- Monitoring and managing the progress and quality control of projects
- Supporting technical support personnel with customer issues and schedules
- Project planning, coordination, and quality control
- Preparing preliminary diagrams of installation configuration including ALI controllers, CAD systems, CPE equipment, and mapping equipment
- Producing training materials and training outlines
- Documenting and communicating project progress
- Completing acceptance test plans with customers
- Completing successful installations of GeoComm systems at customer sites, including cabling, hardware setup, networking, software installation, and post installation follow-up
- Conducting on-site customer training for the use of GeoComm products individually or in groups
- Maintaining a working knowledge of Microsoft Office applications, PC operations, and other related software applications
- Maintaining a working knowledge of current GeoComm software
- Assisting with software setup and support when needed, and validates and adjusts product setups to accommodate successful implementations
- Leading wrap-up sessions including review of installation status, answering final questions, agreeing on a communication plan, and presenting information on how to contact GeoComm for software and map development assistance
- Network infrastructure/telephone system analysis and design
- Computer and server repair
- Disaster recovery
- Network administration

Professional Experience

GeoComm

St. Cloud, Minnesota

- Implementation Specialist

Minco Technology Center

St. Cloud, Minnesota

- Senior Network Engineer and PC Technician

Lazer Communications

St. Cloud, Minnesota

- Internet, Telephone, and Cable Installation Technician

Education

St. Cloud State University

St. Cloud, Minnesota

- B.S. in Computer Science

Certifications

- Microsoft certified professional in Sever 2003

Laura Loberg

Implementation Specialist

Laura's experience includes:

- Analyzing systems and advising customers of best technical solutions
- Installing and testing the complete GeoComm Family of Products
- Coordinating assigned installations by understanding project scopes
- Resolving technical support issues in a timely fashion
- Training for system administration facilitator
- Testing software releases and related equipment
- E9-1-1 dispatcher training
- Monitoring and managing the progress and quality control of projects
- Supporting technical support personnel with customer issues and schedules
- Project planning, coordination, and quality control
- Preparing preliminary diagram of installation configuration, including ALI controllers, CAD systems, CPE equipment, and mapping equipment
- Producing training materials and training outlines
- Completing acceptance test plans with customers
- Completing successful installations of GeoComm systems at customer sites, including cabling, hardware setup, networking, software installation, and post installation follow-up
- Conducting on-site customer training for the use of GeoComm products individually or in groups
- Maintaining a working knowledge of Microsoft Office applications, PC operations, and other related software applications
- Maintaining a working knowledge of current GeoComm software
- Assisting with software setup and support when needed, and validates and adjusts product setups to accommodate successful implementations
- Documenting project notes, installation reports, process changes, trouble tickets, and status reports
- Leading wrap-up session which includes review of installation status, answering final questions, agreeing on a communication plan, presenting information on how to contact GeoComm for software, and map development assistance
- Computer skills include: ASP.NET, SQL, HTML, XML, UNIX, Windows 95-XP, MS-DOS, AS400, Mac OS X, SQL Express, ESRI Products, MS Office Suite (Word, Excel, PowerPoint, Access, Project, Outlook), FrontPage, Lotus Notes, WebMatrix, Microsoft Visio, XML Spy, Embarcadero, Photoshop, Paint Shop Pro

Professional Experience

GeoComm
St. Cloud, Minnesota
- Implementation Specialist

Merrill Corporation
St Cloud, Minnesota
- Help Desk Technician

Republic Bank
Duluth, Minnesota
- Proof Machine Operator

Wells Fargo Bank
Duluth, Minnesota
- Proof Machine Operator

Education

University of Minnesota Duluth
Duluth, Minnesota
- Bachelor of Business Administration

  Major: Management Information Systems

  Minor: Accounting

Related Course Work

- Systems analysis and design
- Trends and issues in information systems
- Database management and design
- Management information systems
- Telecommunications
- Advanced applications development
- XML and applications
- Intro to programming in Java
- Business information systems

Kari Abraham

Implementation Specialist

Kari's experience includes:

- Analyzing systems and advising customers of best technical solutions
- Installing and testing the complete GeoComm Family of Products
- Coordinating assigned installations by understanding project scopes
- Resolving technical support issues in a timely fashion
- Training for system administration facilitator
- Testing software releases and related equipment
- E9-1-1 dispatcher training
- Monitoring and managing the progress and quality control of projects
- Supporting technical support personnel with customer issues and schedules
- Project planning, coordination, and quality control
- Preparing preliminary diagram of installation configuration, including ALI controllers, CAD systems, CPE equipment, and mapping equipment
- Producing training materials and training outlines
- Completing acceptance test plans with customers
- Completing successful installations of GeoComm systems at customer sites, including cabling, hardware setup, networking, software installation, and post installation follow-up
- Conducting on-site customer training for the use of GeoComm products individually or in groups
- Maintaining a working knowledge of Microsoft Office applications, PC operations, and other related software applications
- Maintaining a working knowledge of current GeoComm software
- Assisting with software setup and support when needed, and validates and adjusts product setups to accommodate successful implementations
- Documenting project notes, installation reports, process changes, trouble tickets, and status reports
- Leading wrap-up session which includes review of installation status, answering final questions, agreeing on a communication plan, presenting information on how to contact GeoComm for software, and map development assistance

Professional Experience

GeoComm

St. Cloud, Minnesota

- Implementation Specialist

Cloudnet, Inc.

St. Cloud, Minnesota

- Technical Support Representative

Minnesota School of Business

St. Cloud, Minnesota

- Tutor

Nordic Aseptic

Alexandria, Minnesota

- Pallettizer

Education

Minnesota School of Business

St. Cloud, Minnesota

- Bachelor of Science Information Technology

Southwest Minnesota State University

Marshall, Minnesota

- Bachelor of Science Computer Science

Ryan Schofe

GIS Specialist

Ryan's experiences includes:

- Conducting all aspects of map development, map data assessments, software setups and database development including GPS gathering
- Soliciting information from contacts to obtain all necessary resources to complete a successful project
- Taking customer and resident calls regarding project issues
- Monitoring own progress, and overall geographic services schedule on assigned projects
- Monitoring and assures quality control on all assigned projects
- Resolving customer and project issues promptly
- Maintaining a working knowledge of GeoComm software, Microsoft Office, and ESRI products for GIS data development and maintenance
- Monitoring assigned maintenance projects and following up with customers on maintenance activities
- Maintain an understanding of the interaction of GIS technology as it relates to the development of the Enhanced 9-1-1 system components of MSAG, telephone database, and postal coordination of address conversion
- Skilled in ArcGIS, ArcCatalog, ArcView, ERDAS, Adobe Photoshop, Word, Power Point, and basic Excel skills
- Creating and maintaining map data for use within E9-1-1 software programs including GeoLynx
- Developing and maintaining cellular map data layers
- Coordinating with customers on issues in regard to the communication plan and scope of services for all projects
- Working with customers to ensure projects are completed to the customer's satisfaction
- Working closely with customers to ensure accurate up-to-date information is available for 9-1-1 mapping purposes

Professional Experience

GeoComm

St. Cloud, Minnesota

- GIS Specialist

Target Corporation/SCSU SARC Project Center

St. Cloud, Minnesota

- Cartographer

Cub Foods

St. Cloud, Minnesota

- Meat Department Clerk

Coborn's Grocery Store

Sartell, Minnesota

- Stocking/Shift Supervisor

Skylight Gardens Retirement Home

St. Cloud, Minnesota

- Dietary Aid/Maintenance

Education

St. Cloud State University

St. Cloud, Minnesota

- Bachelor of Arts degree, anticipated May 2008

  Major: Geography

  Minors: GIS, German

Sophia Gossman

GIS Specialist

Sophia's experiences includes:

- Conducting all aspects of map development, map data assessments, software setups and database development including GPS gathering
- Soliciting information from contacts to obtain all necessary resources to complete a successful project
- Taking customer and resident calls regarding project issues
- Monitoring own progress, and overall geographic services schedule on assigned projects
- Monitoring and assures quality control on all assigned projects
- Resolving customer and project issues promptly
- Maintaining a working knowledge of GeoComm software, Microsoft Office, and ESRI products for GIS data development and maintenance
- Monitoring assigned maintenance projects and following up with customers on maintenance activities
- Maintain an understanding of the interaction of GIS technology as it relates to the development of the Enhanced 9-1-1 system components of MSAG, telephone database, and postal coordination of address conversion
- Skilled in ArcGIS, ArcCatalog, ArcView, ERDAS, Adobe Photoshop, Word, Power Point, and basic Excel skills
- Knowledgeable of Garmin GPS receiver attaining data and creating maps from that data
- Knowledge with ArcMap to help researchers develop maps
- Creating and maintaining map data for use within E9-1-1 software programs including GeoLynx
- Developing and maintaining cellular map data layers
- Coordinating with customers on issues in regard to the communication plan and scope of services for all projects
- Working with customers to ensure projects are completed to the customer's satisfaction
- Working closely with customers to ensure accurate up-to-date information is available for 9-1-1 mapping purposes

Professional Experience

GeoComm

St. Cloud, Minnesota

- GIS Specialist

College of St. Benedict

St. John's University, Minnesota

- Geographic Information System Teacher's Assistant

South Coast Natural Resource Management

Albany, Western Australia

- Environmental Intern

Education

College of St. Benedict

St. Joseph, Minnesota

- Bachelor of Arts

  Major: Environmental Studies

  Minor: Economics

Volunteer Experience

Campus Greens

College of St. Benedict/St. John's University, Minnesota

- Developed and held events
- Created and maintained a budget

Arboretum

St. John's University, Minnesota

Savanna Spring Nature Area

Chatfield, Minnesota

- Taught educational program about plants in the nature area to grade-schoolers
- Collected and planted seeds to start and expand the nature area

Jody Sayre

Vice President of Client Services

Jody, one of the most experienced public safety GIS professionals in the country, offers invaluable insight into GeoComm's continued vision for its products and services. Over the past ten years she has managed the design and development of all GeoComm projects involving the analysis of existing GIS data within the context of wireline and wireless 9-1-1 applications. Jody's experience reaches all the way from being the GIS technician at the customer site collecting data to developing the overall project approach during the procurement phase, to managing the entire project team.

Jody manages seven managers who oversee GeoComm's client services operations with over 55 professional GIS specialists, consultants, software developers, and client services staff members who focus on varying aspects of GeoComm public safety projects. Jody is an active participant in all company and customer projects from project strategy to product development to project oversight. GeoComm's base of satisfied customers continues to grow largely in part to Jody's vision of quality products, successful project completions, and outstanding customer service.

As a member of GeoComm's executive committee, Jody is involved with all company goal development including offering strategic guidance for industry-related developments.

Jody's experience includes:

- Ensuring the goals approved for each specializing area: Implementation, Customer Support, GIS, Software Development and Testing, and Consulting are implemented
- Providing guidance on customer relations, project management, and project team supervising
- Policy and procedure development and implementation for the Client Services Department
- Experience coordinating more than 75 9-1-1 telephone database conversions
- Experience monitoring and maintaining project schedules for over 250 GIS 9-1-1 projects at any given time
- Managing the development of 300 countywide GIS databases for public safety systems in 34 states
- Assisting in developing internal project management tracking systems
- Extensive knowledge of ESRI GIS technologies

Professional Experience

GeoComm

St. Cloud, Minnesota

- Vice President of Client Services
- Project/Geographic Services Manager
- GIS Project Manager
- GIS Supervisor
- GIS Specialist
- GIS ALI Database Technician

Education

St. Cloud State University

St. Cloud, Minnesota

- B.A. in Geography

Memberships and Certifications

- URISA member

Highlighted Projects

Jody has been the principal GIS investigator on all of GeoComm's major projects including projects for:

- 9-1-1 Association of Central Oklahoma Governments (9-1-1 ACOG)
- Jefferson County Emergency Telephone Authority Service Board (JCETASB) in Colorado
- The city and county of Honolulu, Hawaii.

John Brosowsky

Product Development Director

John and a team of software developers are responsible for all activities related to GIS software development and GIS hardware aspects at GeoComm. From a national perspective, John has arguably more experience with public safety GIS software research and development than anyone does in the country. John was responsible for the design and installation of the first GIS "Mapped ALI" system, in Meeker County Minnesota, during the mid 1990s. This system continues to operate today.

Over the ensuing 13 years, John has overseen the progressive development of public safety GIS software programs resulting in the installation of over 2,700 licensed copies of Public Safety GIS software in over 400 sites throughout the United States. John has also supervised the design of dozens of customized software interface systems allowing for the integration of GIS data with public safety text data for the purpose of providing spatial context to public safety information for strategic and tactical purposes.

John's experience includes:

- Overall project management, planning, design, and development of GeoComm software products
- Developing strategy and direction for software product vision statements and scopes
- Meeting product version and new version deadlines for all software products
- Coordinating software demos to introduce new products internally and to potential customers
- Managing product design and development from concept through coordination of product launch
- Researching the basis for development of software products and systems
- Developing sales documentation, proposals, sales strategies, and presentations to increase the salability of all products
- Nine years of experience in program management and software development with concentration in GIS and Public Safety applications
- Initially created, designed, and developed of GeoComm's suite of E9-1-1 dispatch mapping, automatic vehicle tracking (AVL), and GPS sensor interface software
- Writing and reviewing technical documentation including white papers, product concept proposals. requirements, specifications, flowcharts, diagrams, and user/customer materials that describes how systems operate

Professional Experience

GeoComm

St. Cloud, Minnesota

- Product Development Director

Westphal & Associates

- Independent Contractor for GIS Software Applications Development

Intelligraphics International/Analytical Surveys (ASI)

- Senior Geographic Information Systems Specialist

Education

University of Wisconsin

Madison, Wisconsin

- B.S. in Geography Emphasizing GIS and Automated Cartography

Milwaukee Area Technical College

Milwaukee, Wisconsin – Continuing Education

- Software Development

St. Cloud State University

St. Cloud, Minnesota

- Continuing Education – Geographic Information Systems

Memberships and Certifications

- National Emergency Number Association (NENA) member

Highlighted Projects

- Responsible for the analysis, design, and development of the first live operational wireless E9-1-

John Brosowsky cont.

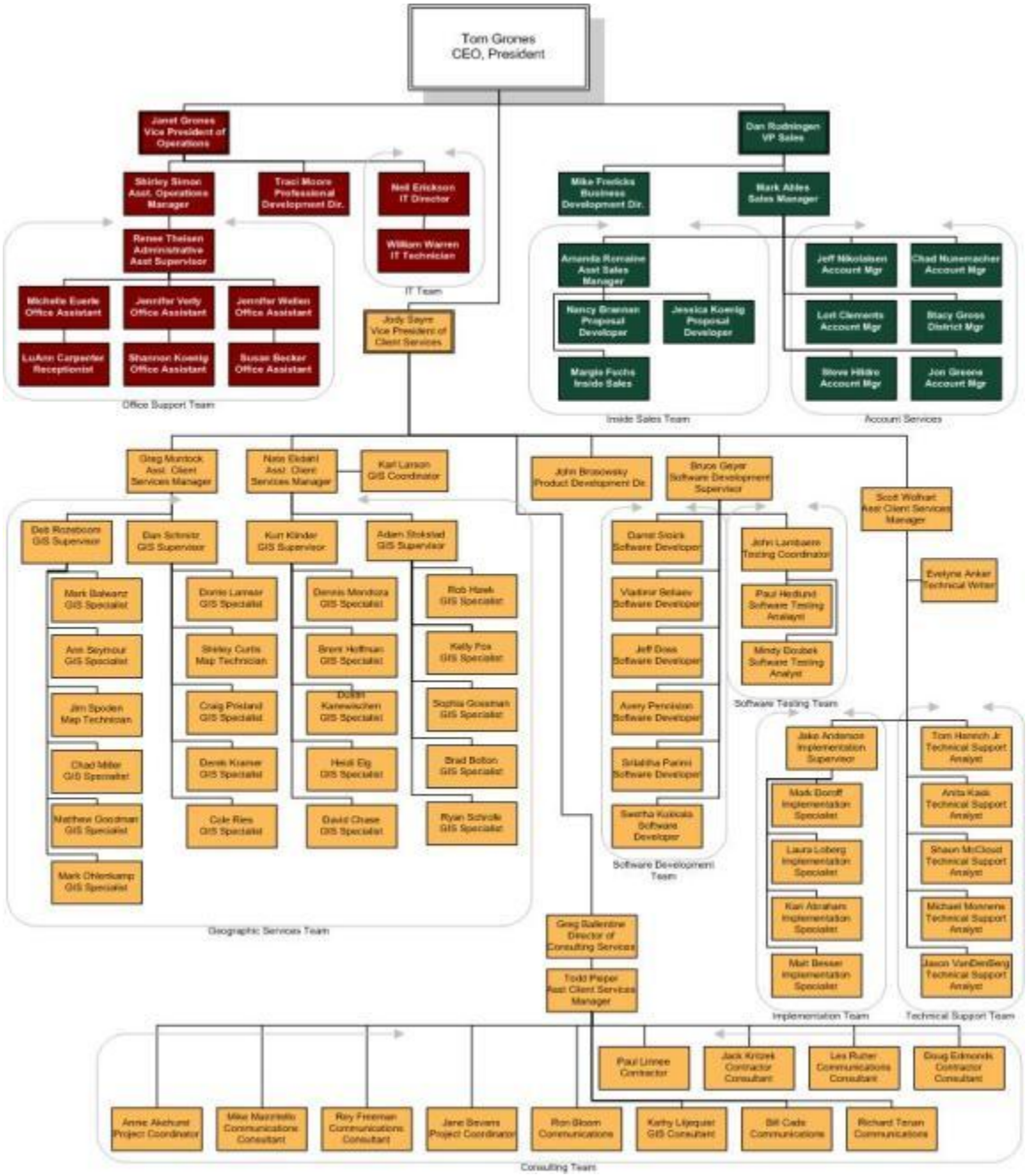
- Responsible for the architectural analysis, design, and development of the first prototypical wireless E9-1-1 call mapping software, and spatial 9-1-1 call routing software, ever demonstrated in the United States
- Providing expertise in developing interfaces that integrate GeoComm software with other external database and real time systems, such as sensor arrays, CAMA (computer aided mass appraisal) systems, Computer-Aided Dispatch Systems, and 3-D real time visualization systems
- Professional presenter and lecturer at national conferences, including NENA and APCO
- Experience in Hardware Systems including E9-1-1 ANI/ALI Controllers, E9-1-1 Remote ALI Database Interfaces, E9-1-1 Selective Router Servers, Radio Modems, GPS Equipment
- Experience with GIS Software Applications including MapInfo Professional, ESRI AcrView, ArcGIS, ArcIMS, ArcCAD, Bently Microstation, Autocad Map
- Experience with GIS Software Applications Development including MapInfo (MapX, Map Basic), ESRI (Avenue, MapObjects, ArcIMS, ArcSDE), Database (ODBC, ADO, SQL), MS Visual Basic / Visual C++, InstallShield, and MS Windows Installer, HTML, XML, ASP

1 call mapping system installed anywhere in the United States in St. Clair County, Illinois

- Provided direction for the development and implementation of a system that utilizes secure Internet technology to publish dynamically updated spatial data to over 45 E9-1-1 call centers with over 250 E9-1-1 call operators, within the nine-county 9-1-1 jurisdiction governed by the Mid-America Regional Council (MARC) headquartered in Kansas City, Missouri

Other Staff/Organizational Chart

GeoComm employs more than 80 people in a variety of capacities including Sales, Administration, Management, and Client Services. GeoComm's public safety depth is second to none, allowing us great flexibility in assigning resources to our outstanding projects. The fact our jobs are completed on time and within budget is a testament to the professional nature of our staff. The project team will be assisted by other individuals from GeoComm depicted in the full company organizational chart included below.



1.0	Functional Requirements	Response	Comments
1.0500	**GIS MAP INTERFACE FEATURES**		
1.0501	System uses existing City of Frisco GIS data (in native NAD83 North Central Texas State Plane coordinate system) for the base map.	AC	
1.0502	System can display aerial photography and any other GIS data with customizable icons in the map interface.	AC	
1.0503	System allows the user to zoom in and out of the map by dragging a square over the area or clicking a button.	AC	
1.0504	System shows a compass indicating North on all maps.	AC	
1.0505	System shows a scale bar on all maps.	AC	
1.0506	System provides capability to measure length and area in the map interface in various common units of measure (feet, miles, kilometers, square feet, acres, etc.).	AC	
1.0507	System provides capability to identify individual map features for additional attribute data associated with each feature.	AC	
1.0508	System provides capability to customize the legend.	AC	
1.0509	System provides a method to link from map features to one or more documents (such as PDF, Visio, jpeg, URL, etc.).	AC	
1.0510	System provides a method to dynamically mark up the map with text and shapes and publish the data out to all other users of the system in real time.	AC	
1.0511	System has search capabilities across multiple GIS data layers.	AC	
1.0512	System must geocode using a composite address locator based on City of Frisco GIS data.	AC	
1.0513	System provides ability to return map coordinates at a selected map location.	AC	
1.0514	System provides a method to link from an icon on the map interface to a video streaming website.	AC	
1.0515	System provides method to save previous searches.	AC	
1.0516	System provides method to search by key word on any map contents or labels. (ex: hazardous materials or store name in a shopping mall)	AC	
1.1000	**INTEGRATION WITH EXISTING SYSTEMS**		
1.1001	System must be developed with the ESRI ArcGIS	AC	

	9.3 product suite.		
1.1002	System must be able to access GIS data from any of the following: an SDE geodatabase, a personal geodatabase, a file geodatabase.	AC	
1.1003	System can display textual 9-1-1 call data onto a GIS mapping interface. (Dispatch only)	AC	
1.1004	System can display Call For Service (CFS) data from the existing CAD system (ICS CAD) onto a GIS mapping interface.	AC	See Section 7 regarding the CAD Integration
1.1005	System provides a method to read from external database sources.	AC	
1.1006	System can consume web services to display external GIS feature data or textual data in the mapping interface. For example: weather data	AC	
1.1007	System provides tool or application to facilitate data synchronization between server and mobile units.	AC	Using GeoLynx Sync. See Appendix B for more information regarding Optional GeoLynx Sync.
1.1008	System integrates with an Emergency Notification System (third party or integrated into proposed solution) to determine a call list from a map and execute the call notification.	AC	With either GeoLynx ENS or the ENS Add-on Module for GeoLynx EOC. Additional information and pricing can be provided if an ENS option is desired.
1.1500	**PICTOMETRY INTEGRATION**		
1.1501	System can access and display the City of Frisco Pictometry imagery and data.	AC	
1.1502	System can display Pictometry with the ability to rotate the image from each of the four cardinal directions (EWNS).	AC	
1.1503	System can display Pictometry with the ability to take measurements (such as distance, area and height) over the images.	AC	
1.2000	**AVL/ROUTING**		
1.2001	System has Automatic Vehicle Location (AVL) functionality allowing user to view all equipped vehicles. Vehicle information should be able to be labeled and symbolized.	AC	Using GeoLynx AVL. See Appendix B for more information regarding GeoLynx AVL.
1.2002	System has the ability to “play back” AVL data based on selected criteria including time and vehicle id. (Dispatch only)	AC	
1.2003	System can route incoming Calls For Service (CFS) locations from CAD based on vehicle location and user defined map coordinates.	AC	With the CAD Integration described in Section 9 Implementation.

1.2004	Routing capability should include point to point routing, multi-point routing and dynamic routing around user defined impedances.	AC	
1.2005	Routing functionality should include turn by turn directions.	AC	
1.2006	System has the ability to perform vehicle routing using existing City of Frisco GIS Data.	AC	Existing GIS data will be reviewed during the Map Data, 9-1-1 Database, and MSAG Analysis to determine if data currently meets vehicle requirements. See Section 9 Implementation for more information regarding the Analysis.
1.2007	System includes services and/or software to analyze the City of Frisco GIS data for AVL/Routing functionality and provide feedback for necessary updates. Describe method.	AC	With the Map Data, 9-1-1 Database, and MSAG Analysis service. See Section 9 Implementation for more information regarding the Analysis.
1.2500	**HAZARDOUS MATERIALS (HAZMAT) TOOLS**		
1.2501	System has the ability to perform ALOHA Chemical Plume Modeling. Resulting model should be shared with all other system users via the map interface.	AC	
1.2502	System must integrate the standard Emergency Response Guide (ERG) for quick access to hazardous material information.	AC	
1.3000	**USABILITY REQUIREMENTS**		
1.3001	System used in mobile vehicles utilizes touch screen functionality and large, easy to read labels, buttons and controls to facilitate quick navigation. (Vehicle only)	AC	
1.3002	System employs tabs, layers and user configurable layouts to prevent screens from becoming too cluttered.	AC	
1.3003	System provides method to navigate back to previous screen.	AC	
1.3004	System provides method to print current screen or map view.	AC	
1.3005	System provides method to print a complete image of the map or floor plan.	AC	
1.3500	**SECURITY AND ACCESS**		
1.3501	System allows integration with the existing Active Directory authentication where user access is required.	AC	
1.3502	System creates audit records of changes made to the system.	NA	

1.3503	System controls permission to delete audit records.	NA	
1.3504	System supplies user definable security features, including, but not limited to: password access, user group security rights, field-level rights, record-level security rights, and control permissions to allow and prevent information editing and deletion.	AC	
1.3505	Security is assignable on user-definable levels based on map layers (i.e., allows to specify information for Police only)	AC	
1.3506	Ability to allow users to access all required systems through a customizable web portal.	AC	With GeoLynx EOC users will be able to see CAD calls, 9-1-1 calls, AVL, and ENS, if equipped, anywhere access to the Web is available.
1.3507	Ability to require users to change their passwords on a periodic basis.	AC	
1.3508	Maintain a log of unauthorized attempts to access the system. Security log should be accessible at any time through a report request or online query.	NA	
1.3509	Email the administrator of any incident of over 5 unauthorized attempts by any one user.	NA	
1.3510	The system can provide a full audit trail of all transactions and provide time stamp and User ID.	NA	
1.3511	Support profile based privileges such that database access to a named individual or defined group having the same functional role, class, or organizational assignment.	AC	See explanation following requirements table.
1.3512	System is capable of protecting data from accidental or unauthorized destruction.	NA	GeoComm software does not include build-in system backup software. Typically unauthorized access into hard drives or data servers which store data is secured by our customer's IT departments which are responsible for implementing an operationally relevant backup program
1.3513	System is able to move records near-line or off-line and have protocols built in to ensure that the media is refreshed and the bit error rate is corrected on a regular basis.	NA	

2.0	Technical Requirements	**Response**	**Comments**
2.0001	Product uses Microsoft SQL Server database 2005.	AC	

2.0002	System provides maintenance features that will periodically review the tables and identify any data inconsistencies and incomplete records and exception reports.	AC	GeoLynx 9-1-1 and GeoLynx EOC users may log ANI/ALI and GIS errors manually using auto-assisted error forms. In addition, GeoLynx 9-1-1 captures some errors automatically with no user interaction required, such as unmapped 9-1-1 calls, and Phase II wireless 9-1-1 call coordinates falling outside the Phase I cell sector reported for the same call. Optionally, the discrepancy manager tool in GeoLynx DMS offers interoperability between your GIS deparment and GeoLynx 9-1-1 and GeoLynx EOC. With GeoLynx DMS data managers can query open issues, generate reports and graphs about discrepancy loads, and to close issues after they have been handled. GeoLynx DMS information and pricing can be provided if requested.
2.0003	Include capabilities to protect against loss of system data during system failure.	AC	
2.0004	The product is fully operational on the latest Microsoft desktop operating system, including Vista.	AC	
2.0005	Web-enabled applications can be accessed using Internet Explorer 6 or later version.	AC	
2.0006	Product is accessible over a TCP/IP Ethernet network.	AC	
2.0007	Product operates on the latest Microsoft Windows Server 2003 platforms in a high availability environment with redundant servers including database.	AC	
2.0008	System provides for Secure Sockets Layer (SSL) encryption.	AC	
2.0009	System protects data from accidental or unauthorized destruction.	NA	The City of Frisco would be responsible for determining backup plans and administering the SQL Server.
2.0010	Ability to pull information using web services from external systems to display in map interface.	AC	

2.0011	Ability to connect through ODBC to external systems and display in map interface.	AC	
2.0012	Ability to push information to other systems using web services.	AC	
2.0013	System updates information from third party software automatically at specified intervals. Describe proposed method to update from ancillary systems.	AC	As a function of the custom CAD interface development described in Section 9 Implementation GeoLynx 9-1-1 would automatically view information from CAD as defined in the custom CAD specification that are to be determined.
2.0014	System utilizes the latest Adobe Reader or Visio Viewer for viewing linked documents in their native format.	AC	
2.0015	System provides method to easily back up data for disaster recovery/data integrity. Describe method.	NA	The City of Frisco would be responsible for determining backup plans.
2.0016	System provides method to normalize database and set up format requirements for consistent data entry.	AC	
2.0017	System utilizes an open database structure with data dictionary for external reporting services.	NA	
2.0018	System has ability to export information to Excel.	NA	
2.0019	System capable of providing GIS map refresh within 3 seconds over a wireless card.	AC	The systems have the ability to refresh data on specified intervals however the acutaly time it takes for a GIS map to refresh is based on the following variables which could increase the amount of time it takes to refresh the GIS map: • Bandwidth • Network speed • Size and complexity of the GIS data being rendered • Other considerations such as if the data has been pre-rendered into a cache or if it is being rendered in real time.
2.0020	System provides method of storing large sized files locally on the laptops to enhance response time and avoid unnecessary network traffic. Describe this method and which items can be stored in this way.	AC	GeoLynx Mobile caches all software and GIS data set on the laptops, drastically reducing network traffic. The GeoLynx EOC Web application, while the application is remote, can still also access an ArcGIS Server cache

			copied locally to the laptop if desired to reduce traffic across the network.
2.0021	System provides method to transfer a subset of the information to a memory stick for transfer to other vehicles or third parties. Describe this functionality.	AC	Using GeoLynx Sync. See Appendix B for more information regarding Optional GeoLynx Sync.

See the following explanation for requirement 1.3511

GeoLynx 9-1-1 utilizes user accounts to define behavior, look and feel, privileges, and technical interface specifics that GeoLynx 9-1-1 will apply for a specific user. User accounts control Graphic User Interface configuration options such as adding or removing controls on the screen (such as toolbars), changing control sizes and positions, default states, colors, text fonts, number of map views, data sets for each map view, and a variety of other optional configuration settings. Settings in the user account can cause all or various portions of the application workspace to be "locked" so that a user can move windows or controls. This allows the system administrator to very tightly control the look and feel of the GeoLynx client workstations. The system administrator may create user accounts for all users, groups of users, or a default user account that will apply to all users. If the default user account option is utilized, GeoLynx 9-1-1 will by-pass the username and log-on screen when launching GeoLynx at the operator workstations.

There is security at the application layer. GeoLynx EOC, GeoLynx 9-1-1, and GeoLynx Mobile users have user accounts inside our software. The accounts have roles that define capabilities and data for the user. A user must authenticate at the application layer level in order to access the software. This means GeoLynx EOC, GeoLynx 9-1-1, and GeoLynx Mobile all include a user name and password dialog box when you start the software.

For GeoLynx EOC, you may also optionally apply security at the OS layer level, such as using Active Directory, or other Windows security mechanisms. We accomplish this through security options configured directly in Microsoft IIS, the Web server software used to serve GeoLynx EOC. In this case, a user would get a typical windows username/password dialog when browsing to the GeoLynx EOC application. Once in the application, they would get a second login dialog to authenticate at the application layer. Currently, you cannot bypass the application layer authentication using only windows authentication – GeoLynx EOC always requires you to login using at least the application layer login dialog.

For GeoLynx 9-1-1 and GeoLynx Mobile, system administrators do have the ability to configure the system to bypass the application layer authentication, instead using Windows authentication.

Pricing

Essential Software and Services

Description	One-time Costs	Annual Costs	Totals
GIS Services	$2,995	n/a	**$2,995**
GeoLynx 9-1-1 Dispatch GIS	$52,400	$6,600	**$59,000**
Custom CAD Interface	$10,290	$1,200	**$11,490**
GeoLynx AVL Automatic Vehicle Location	$40,000	$4,200	**$44,200**
GeoLynx Mobile Mobile Response GIS	$56,870	$8,303	**$65,173**
GeoLynx EOC Emergency Operations Center	$39,220	$7,359	**$46,579**
Subtotal:	**$201,775**	**$27,662**	**$229,437**
15% discount (off one-time costs):	**- $30,266**	**n/a**	**- $30,266**
Cost Proposal Total:	**$171,509**	**$27,662**	**$199,171**

Notes: This fee includes all travel and associated costs and should be considered firm.

Software support and maintenance services shall commence 90 days after software installation and continue for one year. Software support payments are dependent on payment terms determine through contract negotiations. Payment of software support and maintenance are not required until 90 days the ATP is signed.

Typical software implementation turnaround is 90 days. A finalized project schedule will be determined at the start of the project.

The 15% discount will be applied to the one-time costs if all essential software and services are contracted for at the same time.

Optional Items

Description	One-time Costs	Annual Costs	Totals
GPS Units – for Option One IP AVL System	$65,772	n/a	**$65,772**
GPS Units – for Option Two IP AVL System	$62,564.50	$764.40	**$63,328.90**
GeoLynx Sync Interoperable Replication and Propagation	$38,895	$6,000	**$44,895**

GIS Services

Description	Qty	Price/Unit	Total Price
Map Data, 9-1-1 Database, and MSAG Analysis			$1,995
Dispatch GIS Setup Services			$1,000
		GIS Services Total:	**$2,995**

GeoLynx 9-1-1

Description	Qty	Price/Unit	Total Price
GeoLynx 9-1-1 Software License(s)	8	$5,500	$44,000
GeoLynx 9-1-1 Installation and Training			$8,400
Annual GeoLynx 9-1-1 Software Support and Maintenance			$6,600
		GeoLynx 9-1-1 Total:	**$59,000**

Notes: GeoLynx 9-1-1 is a single use license. One license is needed per workstation.

GeoLynx 9-1-1 workstations must meet the minimum GeoLynx 9-1-1 hardware requirements as outlined in this proposal.

GeoLynx 9-1-1 operation requires a computer act as the system server. The customer is responsible to provide this system server.

Installation and training prices includes implementation of software at the primary PSAP and the emergency operations center. This price includes installation, training, implementation, travel, and per diem costs.

Custom CAD Interface

Description	Qty	Price/Unit	Total Price
Custom CAD Interface Development	1		$8,000
On-site Installation and Configuration			$2,290
Annual Custom Interface Support and Maintenance			$1,200
		Custom Interface Development Total:	**$11,490**

Notes: Installation pricing includes two days of on-site installation and configuration. This price includes installation, training, implementation, travel, and per diem costs.

Maintenance or improvements for the custom interface will be performed on a time and materials basis with a $125 per hour development charge.

GeoComm has worked with numerous CAD, CPE, and RMS software vendors to create interfaces between their CAD, CPE, and RMS systems and the GeoLynx 9-1-1 Dispatch GIS System. On average, an interface takes roughly 60 to 80 hours to complete. GeoComm will work with you and the appropriate vendors to analyze the requirements and create an estimate for the required interface, depending upon how the other vendors anticipate the use of GeoComm's open API. There may be additional costs from other vendors for their interface work or access to their CAD, CPE, RMS, or crime analysis data.

GeoLynx AVL (IP AVL System)

Description	Qty	Price/Unit	Total Price
GeoLynx AVL Software License(s)	8	$3,500	$28,000

GeoLynx AVL Installation and Training			$7,000
Annual GeoLynx AVL Software Support and Maintenance			$4,200
IP AVL Implementation			$5,000
		GeoLynx AVL Total:	**$44,200**

Notes: GeoLynx AVL is an add-on module to GeoLynx 9-1-1. A license of GeoLynx 9-1-1 or GeoLynx 9-1-1 Admin is required to run GeoLynx AVL. GeoComm understands GeoLynx AVL will reside on the proposed licenses of GeoLynx 9-1-1.

GeoLynx AVL is a single use license. One license is needed per workstation.

The above installation and training prices for GeoLynx AVL reflect price if it is facilitated at the same time as the GeoLynx 9-1-1 installation and training. Price will increase if purchased and installed at a later date. This price includes installation, training, implementation, travel, and per diem costs.

Above costs do not include required GPS units, PC interface cables, and associated installation as well as a data service plan to provide for data transport to and from the vehicles being tracked at the dispatch center. The City of Frisco is responsible for providing these elements.

GeoLynx Mobile

Description	Qty	Price/Unit	Total Price
GeoLynx Mobile Software License(s)	81	$550	$44,550
GeoLynx Mobile Installation and Training	5	n/a	$2,600
Annual GeoLynx Mobile Software Support and Maintenance			$6,683
Standard IP AVL Client Interface	81	$100	$8,100
Annual Standard IP AVL Client Interface Installation	81	$20	$1,620
Annual Standard IP AVL Client Interface Software Support and Maintenance	81	$20	$1,620
		GeoLynx Mobile Total:	**$65,173**

Notes: GeoLynx Mobile is a single use license. One license is needed per mobile data terminal.

GeoComm anticipates the ability to install up to five units of GeoLynx Mobile on the City of Frisco provided mobile data terminals per day. GeoComm is prepared to be on-site for one day for installation and training. The City of Frisco may determine the number of actual days on-site based on the availability of the City of Frisco's IT Department. Additional days will be billed at $1,000 per day. GeoComm will train the City of Frisco designee to install the remaining licenses, if desired. If additional days are desired on-site they must be contracted for prior to on-site installation and training. The installation and training price includes installation, training, implementation, travel, and per diem costs.

As described in Section 7, the Standard IP AVL Client Interface is not needed if the City of Frisco installs cellular data modems with embedded GPS in each vehicle unless it is desired for each individual unit to see the fleet of vehicles. Above costs do not include required cellular data modems with embedded GPS, PC interface cables, and associated installation as well as a data service plan to provide for data transport to and from the vehicles being tracked and the dispatch center. The City of Frisco is responsible for providing these elements.

As described in Section 7, if standard GPS units are used with mobile data terminals and aircards the Standard IP AVL Client interface is required for mobile data transfer to communications center and across a fleet of vehicles.

GeoLynx EOC (10 Concurrent Users)

Description	Qty	Price/Unit	Total Price
GeoLynx EOC GIS Setup Services			$1,000
GeoLynx EOC Software License including: ▪ AVL Viewer	1		$32,250

▪ 9-1-1 Call Viewer ▪ CAD Incident Viewer			
GeoLynx EOC Configuration, Installation, and Training			$5,970
Annual GeoLynx EOC Software Support and Maintenance			$7,359
		GeoLynx EOC Total:	**$46,579**

Notes: The City of Frisco is required to purchase and provide a dedicated Web server for GeoLynx EOC to reside on meeting provided hardware specifications. Alternatively GeoComm can provide this dedicated Web server for an additional $6,500.

The installation and training price includes installation, training, implementation, travel, and per diem costs.

Options

Options to the City of Frisco include:

- GPS Units for installation in mobile units including:
  - option one IP AVL GPS units
  - option two IP AVL GPS Units
- GeoLynx Sync for Interoperable Propagation and Synchronization

GPS Units (IP AVL Option One)

Description	Qty	Price/Unit	Total Price
LT5RLS AVL Modem (one needed for each mobile unit to communicate location to GeoLynx Mobile and GeoLynx AVL)	81	$812	**$65,772**

Notes: Proposed pricing for GPS units does not include installation. Installing GPS units is the responsibility of the City of Frisco.

GPS units are provided with a standard one year parts and labor warranty from the manufacturer.

GPS Units and Data Plan (IP AVL Option Two)

Description	Qty	Price/Unit	Total Price
GPRS II Units	81	$772	$62,532
Unlimited Data Plan Activation Fee			$32.50
One Year Unlimited Data Plan *(Monthly Charge)*	12	$63.70/month	$764.40
GPRS II Units and Data Plan Total:			**$63,328.90**

Notes: Proposed pricing for GPS units does not include installation. Installing GPS units is the responsibility of the City of Frisco. GPS units are provided with a standard one year parts and labor warranty from the manufacturer.

GeoLynx Sync

Description	Qty	Price/Unit	Total Price
GeoLynx Sync Server Software License(s)	1	$4,000	$4,000
GeoLynx Sync Server Installation and Training			$1,400
Annual GeoLynx Sync Server Software Support and Maintenance			$1,000
GeoLynx 9-1-1 Admin Software License(s)	1	$1,995	$1,995
Annual GeoLynx 9-1-1 Admin Support and Software Maintenance			$500
GeoLynx Sync Client Software License(s)	90	$250	$22,500
GeoLynx Sync Client Installation and Training	90	$100	$9,000
Annual GeoLynx Sync Client Software Support and Maintenance	90	$50	$4,500
GeoLynx Sync Total:			**$44,895**

Notes: A license of GeoLynx 9-1-1 Admin is required to run GeoLynx Sync. GeoComm has provided pricing for GeoLynx 9-1-1 Admin.

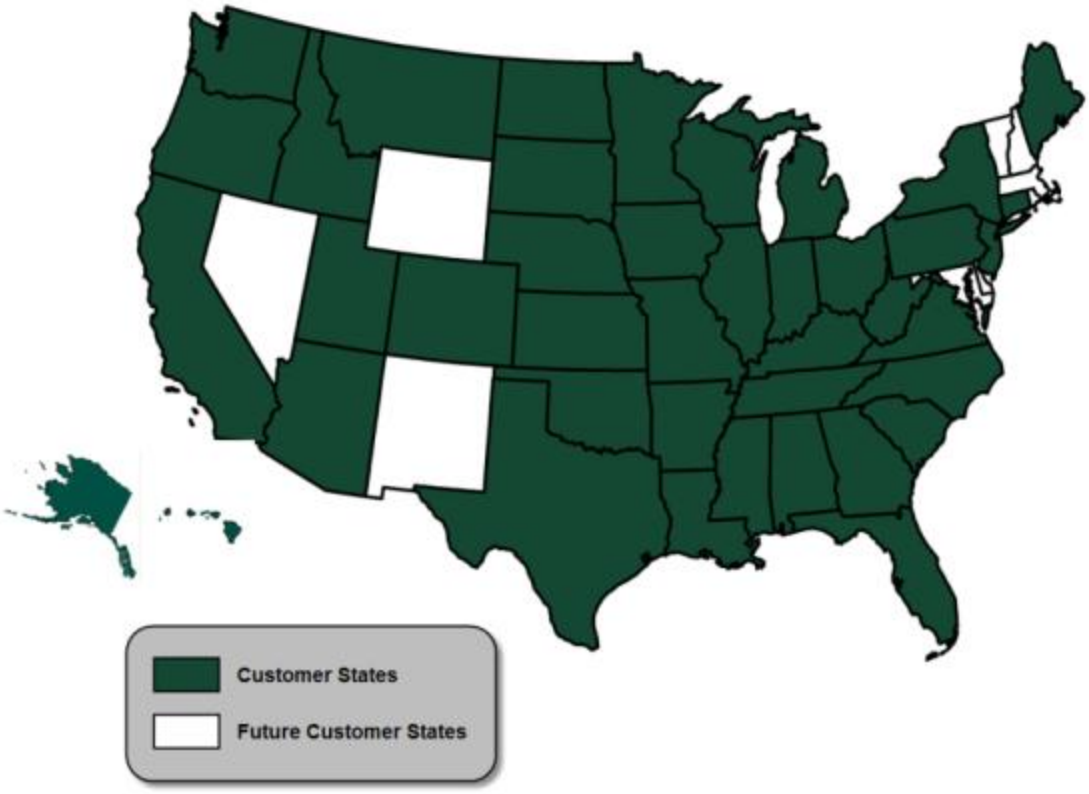
The above installation and training prices for GeoLynx Sync Server reflect price if it is facilitated at the same time as the GeoLynx 9-1-1 installation and training. Price will increase if purchased and installed at a later date. This price includes installation, training, implementation, travel, and per diem costs.

One license of GeoLynx Sync Client is required for each license of GeoLynx 9-1-1 and GeoLynx Mobile including the license the GeoLynx Sync Server will reside on for data packet testing.

GeoComm's experience specifically relating to the public safety industry is demonstrated by the following projects and client references. These projects illustrate our broad range of 9-1-1 expertise and our ability to successfully accomplish highly technical projects across the United States.

References

The highlighted states on the map below depict GeoComm's nationwide customer base.



Sioux City and Woodbury County

Iowa

Population
103,877

Customer Since
April 2000

Software
- 8 licenses of GeoLynx 9-1-1
- 8 licenses of GeoLynx AVL
- 30 license of GeoLynx Mobile
- 1 license of GeoLynx DMS

Customer Contact
Glen Sedivy
Woodbury County 9-1-1 Service Board
601 Douglas Street
Sioux City, IA 51101
(712) 279-6959

Project: Woodbury County is a medium-sized county of 875 square miles, situated in west central Iowa, on the Missouri River. GeoComm installed GeoLynx 9-1-1 and GeoLynx AVL in the eight-position 9-1-1 PSAP located at the Joint Law Enforcement Center in Sioux City. From this location, various call-takers and dispatchers use the software to map wireline 9-1-1 calls that originate from within Sioux City. Currently, GeoComm is under contract to complete their rural map data to extend the mapped ALI capabilities countywide. In addition to mapping wireline 9-1-1 calls, the community awaits the imminent installation of Phase I and Phase II wireless 9-1-1 networks within the next six to nine months. Finally, local dispatchers track the real-time positions of the City's 31 squad cars at a one-minute update rate on a 24-hour a day basis.

GeoComm was contracted by Sioux City to host their map data on one of our local servers and to provide system maintenance and map data updates.

Benton County

Iowa

Population
27,000

Customer Since
1999

Software
- 2 licenses of GeoLynx 9-1-1
- 2 licenses of GeoLynx AVL
- 4 license of GeoLynx Mobile

Customer Contact
Randy Forsyth
113 E 3rd Street
Vinton, IA 52349
(319) 472-2337
r.forsyth@bentonsheriff.com

Project: Benton County has been a long-standing, valued GeoComm customer since 1999. Since the first contract for GIS base map development and GeoLynx 9-1-1 and GeoLynx AVL implementation, GeoComm has been providing numerous software systems and services to Benton County. Software systems and services provided throughout the past nine years has included:

- Wireless Phase I layer development
- GeoLynx Mobile Software
- GIS Base Map Maintenance Services
- Support and Software Maintenance Services

Since Benton County's initial purchase of one license of GeoLynx Mobile in 2004 they have added an additional three licenses to their Mobile Response system.

The GIS base map maintenance and support and software services we have been providing to Benton County has ensured they are using the most up-to-date GIS data in fully supported software since initial implementation.

Greer County Emergency Management

Oklahoma

Project: GeoComm developed and implemented an E9-1-1 system for Greer County, which has a land area of 639 square miles including four incorporated municipalities. GeoComm provided geographic services and software systems solutions. Geographic services included developing a locatable addressing system, digital base map, MSAG, and ALI database. Initial database construction involved 4,673 phone records.

Greer County contracted with GeoComm to implement GeoLynx 9-1-1, which provides fully automated E9-1-1 dispatch GIS information for wireline and wireless calls.

Greer County also selected GeoComm's GeoLynx AVL software module for vehicle tracking among eight ambulance and law enforcement vehicles. GeoLynx AVL enables dispatchers to locate all emergency vehicles equipped with tracking units (squad cars, fire trucks, ambulance, water patrol boats, ATV, etc.) on a digital map.

Population
6,601

Customer Since
January 2003

Roadway Miles
1,015

Square Miles
639

Software
- 1 license of GeoLynx 9-1-1
- 1 license of GeoLynx AVL
- 4 license of GeoLynx Mobile

Services
- Address Conversion
- GIS Map Data Development
- MSAG and ALI Database Development
- GPS Field Collection
- GIS Map Data Maintenance Services
- Wireless Phase I Layer Development
- Installation and Training
- Software Support and Maintenance

Customer Contact
Glynadee Edwards
105 S Penn
Mangum, OK 73554
Phone: (580) 782-3254
Fax: (580) 782-3803
greerems@onenet.net

Itasca County

Minnesota

Population
43,992

Customer Since
April 1999

Software
- 5 licenses of GeoLynx 9-1-1
- 4 licenses of GeoLynx AVL

Customer Contact
Sheriff Pat Medure
440 First Avenue North
Grand Rapids, MN 55744
(218) 327-7470
pat.medure@co.itasca.mn.us

Project: Itasca County is the largest county in Minnesota, spanning over 4,000 square miles, and was one of GeoComm's first projects dating back to 1995. Itasca County continues to be one of our longest-standing and most-valued customers. The original GeoLynx 9-1-1 dispatch GIS software was included as a part of our overall service contract under which we provided the addressing development, E9-1-1 PSAP CPE specification and bid work, E9-1-1 network and database bid and contract work, and E9-1-1 ALI development work. We also provided AVL units. This project is notable in large measure as an example of one of over 150 counties that GeoComm has worked with over the years to develop highly accurate GIS road centerline map data as a backdrop for wireline and wireless 9-1-1 call centers. In 1997, we provided 37 additional AVL units, plus specialized data radios and a special low-band VHF repeater for their AVL system. Over the years, all the work we have done for Itasca County has totaled over $350,000.

GeoComm was also recently awarded a contract for Radio System Consulting and Engineering Services to guide the design and implementation of the county's project build-out of the Twin Cities metropolitan area 800 MHz trunked radio infrastructure.

- Wired 9-1-1 caller plotting
- Implementation of addressing
- E9-1-1 network design and acquisition
- Wireless Phase I and II call plotting
- Large AVL system serving a huge county (40 units)
- Complete PSAP upgrade design consulting

Washington County

Missouri

Project: GeoComm developed and implemented an E9-1-1 system for Washington County, which has a land area of 639 square miles including four incorporated municipalities. GeoComm provided geographic services and software systems solutions. Geographic services included developing a locatable addressing system, digital base map, MSAG, and ALI database.

Washington County contracted with GeoComm to implement GeoLynx 9-1-1, which provides fully automated E9-1-1 dispatch mapping information for wire line and wireless calls. Washington County purchased GeoComm's GeoPoint system to maintain the map data for use in the GeoLynx system.

In addition, Washington County also selected GeoComm's GeoLynx AVL and GeoLynx Mobile software modules. GeoLynx AVL enables dispatchers to locate all emergency vehicles equipped with tracking units (squad cars, fire trucks, ambulance, water patrol boats, ATV, etc.) on a digital map while GeoLynx Mobile allows emergency responders in those vehicles to view the same map data as the dispatchers.

Population

24,032

Customer Since

September 2001

Roadway Miles

1,337

Square Miles

762

Software

- 3 licenses of GeoLynx 9-1-1
- 2 licenses of GeoLynx AVL
- 6 license of GeoLynx Mobile
- 1 license of GeoPoint
- 1 license of Atlas Generator

Services

- GPS Field Collection
- Address Conversion
- GIS Data Development
- MSAG Development
- ALI Database Development
- Communications Consulting and Engineering
- Project Management
- Software Installation and Training
- Software Support and Maintenance

Customer Contact

Jim Porter
12252 N. State Hwy 21
Cadet, MO 63630
(573) 438-0040
jporter@wccd911.org

Jefferson County Emergency Communications Authority Board

Population
568,520

Square Miles
808

Customer Since
June 2005

Software
- 59 licenses of GeoLynx 9-1-1
- 500 licenses of GeoLynx Mobile
- 59 licenses of GeoLynx Sync
- 10 licenses of GeoLynx Stats

Services
- GIS Needs Analysis
- GIS Data Enhancements
- GIS Training
- Ongoing GIS Data Maintenance Services

Customer Contact
Vicki Pickett
Chair of the Advisory Committee
Arvada Police Department
8101 Ralston Road
Arvada, CO 80002
(720) 898-6913
vpickett@arvada.org

Project: GeoComm was hired in June of 2005 to conduct a GIS needs analysis for Jefferson and Broomfield counties to outline available options to develop and maintain a regional GIS data set for use in 10 PSAPs. GeoComm GIS Consultants met with all end-users and decision makers, examined disparate GIS data sets, and made recommendations for the best use of the available resources. In the first quarter of 2006 the Jefferson County Emergency Communications Authority Board (JCECAB) solicited an RFP for implementation of a regional data development, maintenance, and distribution project. The RFP also included the procurement of mapped ALI software.

GeoComm was hired to work with Jefferson and Broomfield counties to establish GIS data standards, clean-up GIS data, append GIS data to create one regional data set, and then deploy 59 GeoLynx 9-1-1 Dispatch GIS software licenses in each PSAP in accordance with the terms of their RFP. Implementation services for the software included on-site installation and a customized training program. To automate the distribution of updated GIS data, GeoComm also deployed 59 licenses of GeoLynx Sync Interoperable Replication and Propagation software.

GeoComm implemented 500 GeoLynx Mobile Mobile Response GIS software licenses. GeoLynx Mobile was implemented for emergency service personnel to view the same GIS data as in GeoLynx 9-1-1 in the JCECAB emergency service vehicles. Ten licenses of GeoLynx Stats Dispatch Analyst Extension software licenses have been implemented too. This application provides graphic display of incident history on the map.

City of Galveston

Texas

Project: GeoComm was hired by the city of Galveston for the implementation of GeoLynx 9-1-1 dispatch mapping software and GeoLynx Sync GIS synchronization software. Before the implementation of the software, GeoComm provided the city of Galveston with a comprehensive analysis which detailed the synchronization rates of the primary 9-1-1 data components related to accurately locating the origin of an E9-1-1 call: GIS map data, MSAG, and ALI database.

With the implementation of the software, GeoLynx 9-1-1 and GeoLynx Sync, GeoComm provided on-site installation and training services.

Population

56,940

Square Miles

398

Customer Since

2005

Software

- 25 licenses of GeoLynx 9-1-1
- 25 licenses of GeoLynx Sync
- 1 license of GeoLynx Sync Server
- 1 license of GeoLynx Admin MO

Services

- GIS Map Data, 9-1-1 Database, and MSAG Analysis
- Installation and Training
- Software Support and Maintenance

Customer Contact

Jack Wilkins
Operations Manager
1353 FM 646 West, Suite 101
Galveston, TX 77539
(409) 935-3911
jackw@galco911.org

Henderson County

North Carolina

Population
91,378

Customer Since
August 2005

Software
- 7 licenses of GeoLynx 9-1-1
- 1 license of GeoLynx DMS
- 18 license of GeoLynx Sync
- 32 licenses of GeoLynx Mobile

Customer Contact
Phyllis Lowder
200 N Grove Street, Suite 86
Hendersonville, NC 28739
(828) 697-4982

Project: GeoComm, along with our business partner, implemented GeoLynx 9-1-1 and GeoLynx Mobile in 2006 and GeoLynx DMS, GeoLynx Sync and additional licenses of GeoLynx Mobile in 2007.

GeoLynx 9-1-1, GeoComm's Dispatch GIS software, along with GeoLynx Sync alleviates the time-consuming and error-prone task of manual data synchronization. From an administrative workstation file updates can be synchronized on a regular basis with no interference with the day-to-day call taking operations of a mission-critical environment.

GeoLynx Mobile was implemented for emergency service personnel to view the same GIS map data in GeoLynx 9-1-1 in the Henderson County emergency service vehicles.

Prior to implementing and training Henderson County on the public safety software, GeoComm GIS Specialists completed a thorough Map Data, 9-1-1 Database, and MSAG Analysis. This analysis depicted the synchronization rate among these three primary components used in plotting 9-1-1 calls. After the analysis was complete GeoComm GIS Specialists enhanced the data to ensure wireline 9-1-1 calls would plot accurately when implementing the public safety software.

After software implementation and GIS map data layer updates Henderson County purchased GeoLynx DMS. GeoLynx DMS helps public safety and GIS professionals build and maintain high quality data for and 9-1-1 dispatch mapping systems and CAD and is an addressing and MSAG data management application.

City and County of Honolulu

Hawaii

Project: GeoComm was hired by Oahu for the implementation of GeoLynx 9-1-1 dispatch mapping software and GeoLynx Sync GIS synchronization software. Before the implementation of the software, GeoComm provided Oahu with a comprehensive analysis which detailed the synchronization rates of the primary 9-1-1 data components related to accurately locating the origin of an E9-1-1 call: GIS map data, MSAG, and ALI database. The analysis included a review of over 200,000 primary search layer features, 12,000 MSAG records, and 500,000 9-1-1 database records.

With the implementation of the software, GeoLynx 9-1-1 and GeoLynx Sync, GeoComm provided on-site installation and training services. GeoComm staff members traveled to Oahu to install the software and train 250 Oahu staff members. To ensure all Oahu staff members were efficiently and effectively trained, two trainers assisted in the training which was completed within four days.

Population
905,266

Roadway Miles
413

Square Miles
599

Customer Since
October 2006

Software
- 63 licenses of GeoLynx 9-1-1
- 63 license of GeoLynx Sync Client
- 2 license of GeoLynx Sync Server

Services
- GIS Map Data, 9-1-1 Database, and MSAG Analysis
- Installation and Training
- Software Support and Maintenance
- GIS Needs Assessment

Customer Contact
Clement Chan
650 S King Street, 6th Floor
Honolulu, HI 96813
(808) 768-7688
cchan@honolulu.gov

Implementation

Above and beyond typical software installation and training services, GeoComm recognizes implementation services are required to help plan the deployment of various system components and to build a deployment architecture that will meet your operational needs and realities based on the City of Frisco's final decisions.

Rather than simply installing the software, training your users, and then leaving you with manuals to go ahead on your own, GeoComm's implementation services help turn the key to the ignition for the system so you can begin to realize benefits immediately after deployment of the proposed system.

As with all of our projects, GeoComm will follow a systematic approach to installation performed to ensure there is the least disruption to the existing, ongoing operations.

One key to successful system implementation is to have a quality project management process in place. Based on established processes and past project experience, GeoComm's processes encompass all facets of project management. This methodology is critical to the success of any assignment.

GeoComm is committed to undertake the work outlined in this proposal. We have the needed resources, processes, and procedures in place to perform this work.

Typical project management services are included in the cost of all software. The cost for our software and services are included in Section 7 Pricing.

Project Team Development

GeoComm has established a project team specifically for the City of Frisco project, with highly qualified project managers supported by public safety software development and GIS experts based in our main office in St. Cloud, Minnesota.

Team members will be assigned specific duties related to the technical and administrative elements of the project and the project managers will provide the oversight necessary to ensure all elements of the project are implemented in a timely manner.

The project team utilizes the expertise of individuals from several departments within the company, all specializing in different aspects of the project. This blend offers a diverse understanding and perspective while working cohesively to deliver the required elements of this project.

Kickoff Meeting and Project Coordination

One of the first steps for the team will be to gain an in depth understanding of your project in its entirety…the total scope, goals, and desired outcomes. Detailed knowledge of all the systems involved is essential and results from staff research, analysis, audits, or assessments. During an initial internal meeting, project leaders

will ensure the team understands any nuances in the scope of work, the overall schedule, and their individual responsibilities during the course of the assignment. This is an effective step in assuring the project's successful and timely completion.

There are many decisions to make and questions to answer at the project start including gaining a detailed understanding of all constraints that may exist with any particular endeavor, i.e. deadlines and risks. Also, efficient methods for communication among team members both internally and externally related to the project will be established.

Through open communication between the City of Frisco and the entire project team an understanding of the depth of the project scope will be gained. With consensus from all parties, a project synopsis will be developed. This open communication between team members and the City of Frisco will be ongoing throughout the entire project and has proven to be an essential part of successful project implementation.

You are an integral part of project implementation with regular meetings scheduled to keep you abreast of the project schedule. To ensure project success, the team will continually identify milestones in the process, tracks all factors, and will inform you of the project status.

Quality Control

Quality control is also an integral part of system implementation. GeoComm will utilize documented internal processes to assure the highest quality of deliverables are developed and documented. In addition, an Acceptance Test Plan (ATP), final report, and approval processes will be utilized with documentation of your ultimate satisfaction with all project elements as the final goal.

Pre-Installation Coordination

Before installation, Implementation Specialists will work with you to assure all hardware is available. Pre-installation conference calls and a project timeline will be outlined in the project plan and reviewed periodically for accuracy.

GeoComm Client Services personnel will work with you to ensure that project requirements are understood and clarified. Conference calls will be made to review installation, hardware, software, and configurations. A Microsoft Visio® diagram will be developed and sent to you to review and to aid in overall project understanding.

The following steps will take place prior to installation and training of the proposed software:

- Map Data, 9-1-1 Database, and MSAG Analysis
- IP AVL Implementation
- Custom CAD Interface Development
- Dispatch GIS Setup Services

- GeoLynx EOC Setup Services

A description of each of these services follows.

Map Data, 9-1-1 Database, and MSAG Analysis

As a company that specializes in GIS, specifically for E9-1-1 wireline and wireless call plotting, GeoComm knows the importance of accurate data. Of equal importance is the synchronization of the three primary data components related to accurately locating the origin of an E9-1-1 call: the GIS map data, 9-1-1 Database, and the Master Street Address Guide (MSAG).

For over 13 years, GeoComm has focused on increasing the accuracy and synchronization among these three components; the greater synchronization between them, the higher probability for accurately pin-pointing emergency call locations.

GeoComm proposes to perform an analysis that will provide you with an overview of issues related to the synchronization and accuracy of the three components. Synchronization issues may be due to errors in any of the three components or a combination of all of them.

The issues will be identified by first reviewing each of the components individually and then by comparing them to one another. The following sections describe some of the processes used by GeoComm GIS Specialists to identify and then compile a report detailing synchronization and accuracy of the data.

Additionally, GeoComm will complete a synchronization review of the map data and a CAD geofile, if provided.

Reviews

Reviews will be conducted on each of the primary components to verify that information contained in each is accurate, consistent, and complete.

Map Data

During the map data review, GeoComm will review the road names and address ranges. Incorrect, incomplete, or inconsistent road names and/or address ranges in the map data may result in valid 9-1-1 addresses that do not match the map data.

GeoComm will also review the consistency of the road segments to ensure they are broken at intersections, Emergency Service Number (ESN) boundaries, and political boundaries. Errors may cause valid 9-1-1 address locations to be on the wrong side of an intersection or in the wrong ESN or political boundary.

Also, the consistency of road segment line direction will be reviewed for accuracy. Errors may cause valid 9-1-1 address locations to be on the wrong end or side of a road.

GeoComm will evaluate map data for routing capabilities if provided with documentation on overpasses/underpasses, one-way streets, and direction flow of those streets within the jurisdiction. To route correctly, GeoComm will review the road file to verify there are continuous road segments at overpasses or underpasses, ramps are digitized, segments are broken at true intersections, and segments are snapped to segments. Specific field names and attributes are required to enable the routing capabilities in GeoLynx 9-1-1, if utilized. This review will provide results to the City of Frisco of any needed updates to enable accurate routing.

Primary Search Layer

Typical map data layers used as a primary search layer include: address points, parcels, or building foot prints. GeoComm reviews this primary search layer to verify the number of duplicates and the consistency of the address information, as well as the MSAG validity of each address.

9-1-1 Database

GeoComm will review addresses and community names in the 9-1-1 database. Incorrect, incomplete, or inconsistent addresses and/or community names in the 9-1-1 database may result in 9-1-1 addresses not matching the MSAG or map data. Addresses from the 9-1-1 database must match the MSAG and map data to effectively plot wireline 9-1-1 calls.

MSAG

GeoComm will review the road names, address ranges, ESNs, and community names in the MSAG. Incorrect, incomplete, or inconsistent road names, address ranges, ESNs, and/or community names in the MSAG may result in valid 9-1-1 addresses that do not match the MSAG or map data.

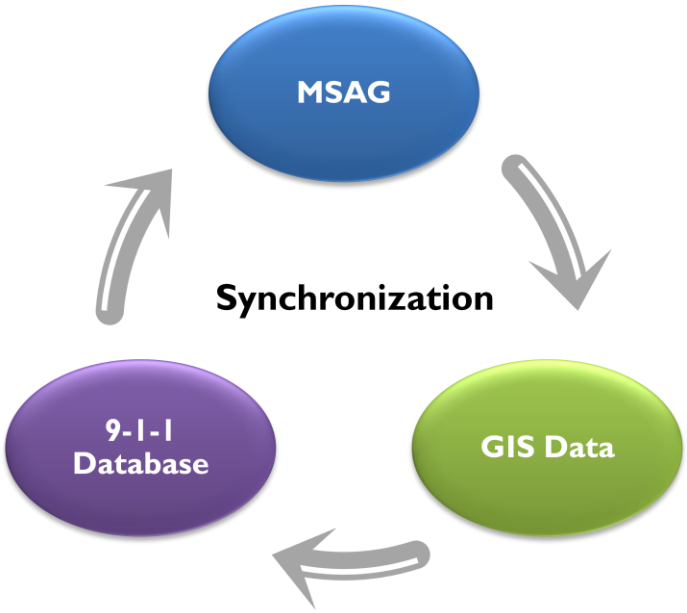
GeoComm will review the MSAG for any overlaps as these could be detrimental in plotting wireline 9-1-1 calls. Although an MSAG that contains overlaps may rarely cause problems it is standard to only have one record for a given street name and range.

Synchronization

Following the reviews of each component GeoComm will perform several processes in order to evaluate the synchronization of all three components. First, the synchronization of the 9-1-1 database, MSAG, and map data will be reviewed. This will provide a list of all 9-1-1 database records that are not MSAG-valid, as well as a list of 9-1-1 database records that do not match the map data.

Second, GeoComm will evaluate the synchronization of the MSAG and map data. This synchronization review may produce a list of possible errors in the MSAG or map data. The errors may be due to MSAG records which are not represented the same in the map data.

Lastly, GeoComm will evaluate the synchronization of the CAD geofile and map data. This synchronization review may produce a list of possible errors in the MSAG or map data. The errors may be due to MSAG records which are not represented the same in the map data.



9-1-1 Database, MSAG, and Map Data

GeoComm will compare the MSAG and 9-1-1 database. This comparison may result in a list of 9-1-1 database records that are not MSAG-valid.

Following this comparison, GeoComm will geocode the address records within the 9-1-1 database to the road file. This process also compares the ESNs assigned to the 9-1-1 database addresses to verify that addresses locate within the correct boundary in the map data. Geocoding the specific records in the 9-1-1 database will denote which addresses match the map data. A list of errors will be compiled from the addresses that do match the map data. These errors could exist for a variety of reasons which will be outlined in the final report.

MSAG and Map Data

GeoComm will geocode records in the MSAG to the road file. This will be completed to provide a list of possible MSAG errors. The geocoding process also compares the ESN boundaries assigned to the MSAG addresses to verify addresses located in the correct boundary in the map data. Geocoding the low and high addresses in the MSAG denote which MSAG records match the map data. A list of errors will be compiled from the addresses that do not plot. These errors could exist for a variety of reasons which will be outlined in the final report.

Once the analysis of all components is complete the results will be compiled into a hard copy report and digital lists of the errors will be created. The hard copy report will provide you with examples of errors and possible solutions that may increase the synchronization of components. The lists of errors will allow you to review each issue individually as you are updating the three components.

CAD Geofile and Map Data

GeoComm will geocode records in the CAD geofile to the road file. This will be completed to provide a list of possible CAD geofile errors. The geocoding process also compares the ESN boundaries assigned to the CAD geofile records to verify if addresses located in the correct boundary in the map data. Geocoding the low and high addresses in the CAD geofile denote which records match the map data. A list of errors will be compiled from those that do not plot. These errors could exist for a variety of reasons which will be outlined in the final report.

Final Report

Once the analysis of all components is complete the results will be compiled into a hard copy report and digital lists of the errors will be created. The hard copy report will provide you with examples of errors and possible solutions that may increase the synchronization of components. The lists of errors will allow you to review each issue individually as you are updating the three components.

Once the report is provided GeoComm will schedule a conference call with the City of Frisco to review the report. After the conference call is complete, it is the City of Frisco's responsibility to resolve the errors. The City of Frisco may also decide to contract with GeoComm to update these components and for future maintenance services. GeoComm has extensive experience in the processes necessary to update these three components for a greater degree of accuracy and synchronization as well as the continued maintenance of all three. Initial cleanup of the map data layers may be necessary before maintenance begins. Additional pricing can be provided for GeoComm to complete these services, if desired.

IP AVL Implementation

GeoComm Implementation Specialists will evaluate the existing wireless communications infrastructure to determine the steps, software components, and network modifications necessary to efficiently and effectively transport AVL data between the vehicles and the GeoLynx 9-1-1/AVL software in the 9-1-1 communications center. GeoComm will help identify additional required hardware or software and will assist with wireless vendors for integration of the GeoComm AVL components with the wireless network. GeoComm will:

- Analyze wired and wireless network architecture.
- Advise your technical staff on requirements to integrate wired and wireless networks to support AVL operations.
- Determine physical and logical locations of GeoComm components within the system architecture.
- Assist with activities with wireless vendors, radio vendors, and your network administration provider to support AVL operations.

- Obtain sample AVL data from your system for testing and validation.

GeoComm proposes three options for transmitting AVL data. The AVL system will operate differently based on the option chosen. AVL for vehicles using laptops, aircards, and GPS units, purchased from a third party vendor will utilize GeoComm's standard IP AVL client interfaces (detailed information is listed below). Optionally, the City of Frisco could purchase LT GPS units from GeoComm. The cost of optional GPS units are included in Section 7 Pricing.

The other two options will utilize cellular modems with integrated GPS to operate AVL. With option two, GeoComm proposes the GPRS II units along with an unlimited data plan (detailed information regarding this option is listed on page 7-9). With option three the City of Frisco can use another approved cellular data modem with integrated GPS purchased from a third party vendor such as the Sierra Wireless PinPoint Ethernet units as depicted in the option three diagram.

Option One: Mobile Data Terminals, GPS Units, and Aircards

If AVL is implemented with mobile data terminals, GPS units, and aircards in the vehicles via a cellular data type network, the AVL location data would operate as follows:

- The GPS and unit ID tracking data will be sent from the GeoComm Standard IP AVL Client Interface installed in the vehicles to the GeoComm Message Switch located at the communications center via the Internet.
- The Standard IP AVL Client Interface will be configured to send GPS signal to the GeoComm Message Switch at the City of Frisco's desired rate.
- The GeoComm Message Switch can send fleet location information back to the Standard IP AVL Client Interface for viewing in GeoLynx Mobile (if installed).
- 9-1-1 ALI can be sent from GeoLynx 9-1-1 to GeoLynx Mobile (if installed) for mapping 9-1-1 calls in the vehicle.

This solution is recommended if the City of Frisco does not plan to purchase cellular modems with integrated GPS for vehicles.

Network configuration including the ability to transmit UDP datagrams from the mobile data terminals to the PC in dispatch and vice versa, and to ping the static IP addresses of the two mobile data terminals from a GeoLynx 9-1-1 workstation is the City of Frisco's responsibility.

For the system to operate as stated above the City of Frisco must:

- Currently have installed or purchase and install one mobile data terminal per vehicle that will be tracked in GeoLynx AVL.
- Purchase one Standard IP AVL Client Interface per mobile data terminal that will be tracked in GeoLynx AVL.
- Currently have connected or purchase and connect one GPS unit to each mobile data terminal per vehicle that will be tracked in GeoLynx AVL.

- Currently have connected or purchase and connect one aircard to each mobile data terminal per vehicle that will be tracked in GeoLynx AVL.
- Ensure mobile data terminals in the vehicles can communicate with the GeoComm Message Switch at the communications center.
- Ensure the mobile data terminals in vehicles are assigned static IP addresses.
- Ensure the GeoComm Message Switch at the communications center can communicate with GeoLynx 9-1-1.
- Purchase GeoLynx AVL.

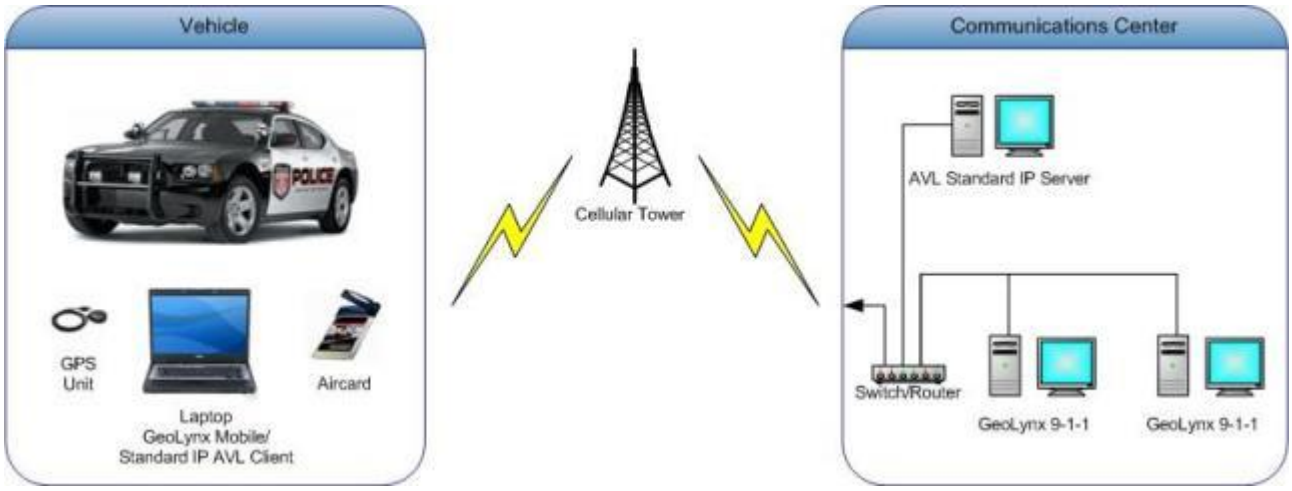
Option One Benefits

- Installation of the equipment would be fairly simple as opposed to mounting GPS units in the trunk or under the seat (Installation of equipment is not provided by GeoComm)
- Could be least expensive option

Option One Disadvantages

- The aircards and GPS units could become detached and non-operational
- A cord would be required to attach the GPS unit/antenna to the mobile data terminals
- The GPS units could be lost or stolen since they are not mounted
- The GPS unit's power source is from the mobile data terminals
- If the mobile data terminals are detached, turned off, or the aircard and GPS units are unplugged, the vehicles cannot be tracked by the AVL software at the dispatch center

A diagram of proposed option one is below.



Option Two: Cellular Modem with Integrated GPS (GPRS II Units from GeoComm)

If AVL is implemented with GPRS II units in vehicles via a cellular data type network, the AVL location data would operate as follows:

- The GPS and unit ID tracking data will be sent from the GPRS II units to the GeoComm Message Switch located at the communications center via the Internet for tracking.
- The GeoComm Message Switch picks up local GPS signal at a configurable rate.

For the system to operate as stated above the City of Frisco must:

- Purchase and install one GPRS II unit per vehicle that can communicate with the GeoComm Message Switch at the communications center. GeoComm has proposed the GPRS II units with an unlimited data plan.
- Ensure the GeoComm Message Switch at the communications center can communicate with the GeoLynx AVL workstation(s).
- Purchase GeoLynx AVL.

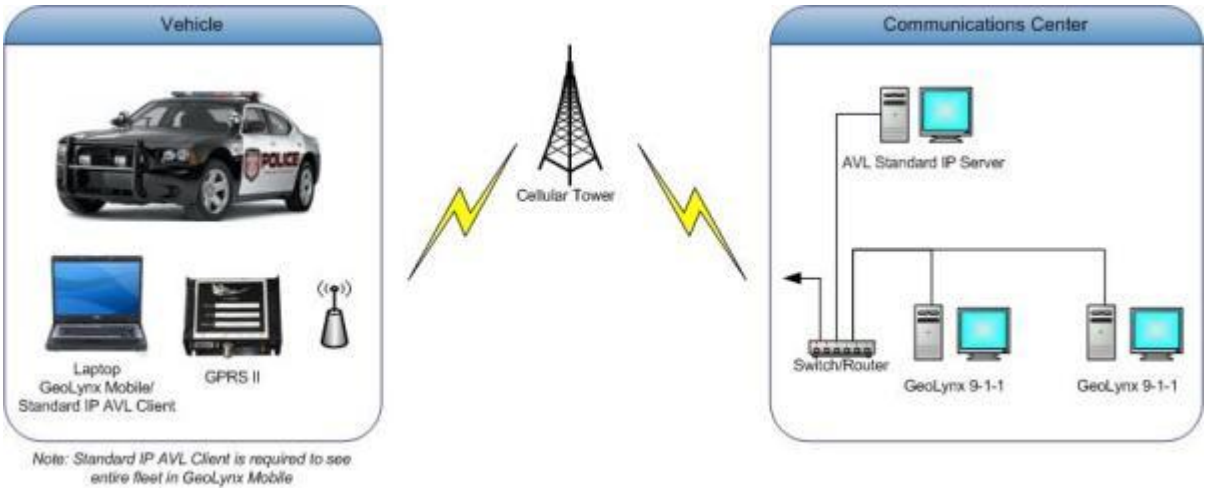
Option Two Benefits

- The GPS units, data plan, and AVL software can be purchased from one vendor, GeoComm
- The GPS unit can be mounted in the trunk or under the seat which is more stable than GPS units on a dash attached to the mobile data terminals
- The GPS unit's power source is from the car battery or fuse box
- The GPS antenna would be mounted to the car instead of sitting on the dash
- The cellular modem with integrated GPS contains both the data communication and GPS signal in one device as opposed to two from option one (aircard and GPS) which allows the GPS signal not relying on the existing AT&T aircards

Option One Disadvantages

- Could be most expensive option

A diagram of proposed option two is below.

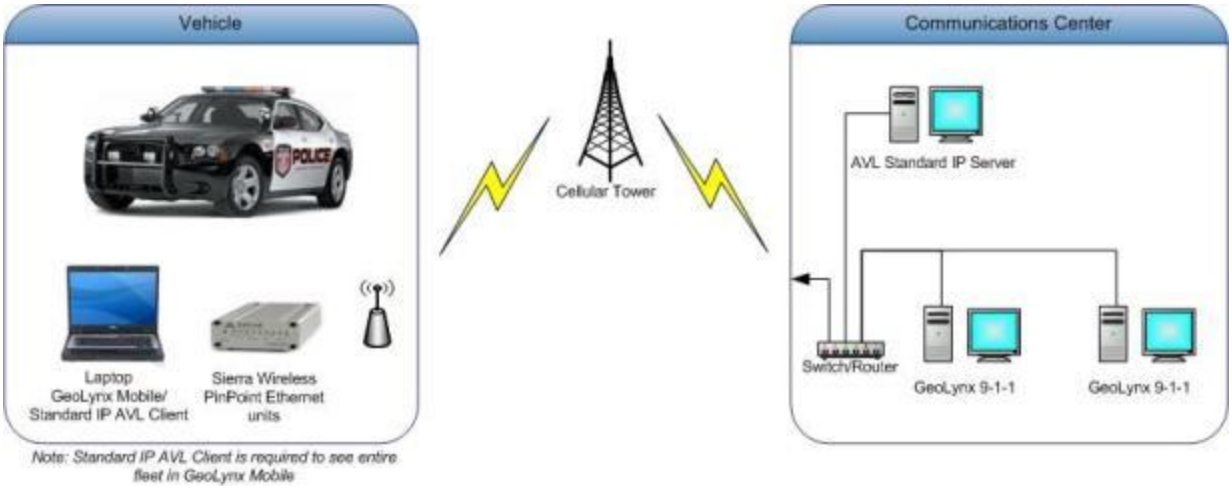


Option Three: Cellular Modem with Integrated GPS (From Third Party Vendor)

Option three will operate the same as in option two. The only difference will be that the City of Frisco will be responsible for purchasing approved cellular modems with integrated GPS and a data plan from a third party vendor rather than purchasing the GPRS II units and data plans from GeoComm. One approved option for cellular modems with integrated GPS are Sierra Wireless PinPoint Ethernet units.

The benefits and disadvantages of this option are similar to option two with the exception that the City of Frisco would need to contract with a third party vendor to provide the cellular modems with integrated GPS and the data plan.

A diagram of proposed option three is below.



Custom CAD Interface Development

GeoComm's GeoLynx Family of Products was developed with a robust, open Application Programming Interface (API) architecture. This means integration with any software systems is easily accomplished. The API enables connectivity to any RMS or CAD system. Because our API is a published specification available for any CAD or RMS vendor, there are no known incompatible systems.

The first step to create the interface is to provide the API specifications to the appropriate vendor. There are several vendors who have already signed such agreements with GeoComm. If the vendor creates the interface, GeoComm provides the API documentation, and the CAD vendor may charge a fee for creating the interface.

If the interface created by the vendor does not communicate directly into the GeoLynx 9-1-1 API specifications, the customization/modification charge for the required programming within GeoLynx 9-1-1 will not exceed $8,000. In order to implement a fully functional interface, your CAD or RMS vendor will need to provide GeoComm with interface specifications.

To date, GeoComm has either interfaced with or is discussing an interface with the following systems:

- Access Data Tech (Sleuth)
- ADSI
- Cardinal Tracking
- Cimbrian
- CIS
- CODY Systems
- Computer Arts, Inc.
- CRIMES
- Cross Current
- Cushing Technologies
- DaProSystems, Inc.
- Delphi Enterprises
- EmergiTech, Inc.
- Emergency Service Integrators (ESI)
- ET Software
- GEAC Public Safety
- Global Software Corporation
- HTE Public Safety
- IDS Applications, Inc.
- Information Management Corp. (IMC)
- Information Technologies, Inc. (ITI)
- InterAct Public Safety Systems, Inc.
- Larimore Associates
- Logistic Systems, Inc. (Logisys)
- New World Systems
- Northrop Grumman Public Safety Company
- Open System Software, Inc.
- Orbacom Communications Integrator Corp.
- Paragon Software International
- PRC CAD
- PrintTrack
- PSSI
- PTS Solutions, Inc.
- Radio Satellite Integrators
- Shield Technology Corporation
- SMART Public Safety Software
- Southern Software
- Tel Control Inc (TCI)
- Tiburon CompuDyne
- TriTech
- Tyler Technologies
- United System Solutions
- USA Software
- Valor Systems
- VisionAir, Inc.

GeoComm is confident in our technical ability to interface GeoLynx 9-1-1 to other popular commercial CAD and RMS programs currently available. We suggest you discuss this with the CAD vendor of your choice before proceeding with an interface.

GeoLynx 9-1-1 has also been successfully interfaced to almost all CPE vendors (sites and contacts available upon request). A partial list of the equipment GeoComm has successfully interfaced GeoLynx 9-1-1 to are systems manufactured by:

- EmergiTech
- 9-1-1 Inc.
- CML
- Positron

- Informer Computer Systems
- Lucent
- Motorola
- Plant
- Tel Control Inc (TCI)
- Xtend
- Zetron

Using a standard CAD serial port from 9-1-1 CPE equipment, GeoComm can virtually guarantee the connection to 100 percent of the available standard 9-1-1 CPE equipment manufactured today - for the full integration of GeoLynx 9-1-1.

GeoLynx 9-1-1 contains an open architecture API with multiple points of entry including:

- TCP sockets
- UDP sockets
- ASCII Delimited Text
- ODBC
- DLL Interface
- XML Interface

GIS Setup Services

One of the most crucial elements in mapping 9-1-1 calls is the GIS map data. GIS map data is produced in many different formats and file structures. For any specialized software program, this format must meet certain minimum map data specifications. However, in addition to complying with those specifications, software compatibility is fundamentally the most important aspect for mapping 9-1-1 calls - so your GIS map data must be adapted to work cohesively with GeoLynx 9-1-1.

To ensure successful implementation, project management time is extensive. Our team uses years of expertise in map data development to provide you with the most effective GIS map data solutions.

GeoComm's GIS setup services include working with your GIS personnel to:

- supply minimum map data specifications for reference during the setup process and review those specifications, via a conference call, to ensure an understanding of the software needs
- advice on how to establish efficient and effective means of sharing data with your GIS personnel, 9-1-1 database and MSAG information providers, and associated agencies
- consult on procedures related to map data updates and the importance of keeping data up-to-date in a 9-1-1 environment

- review the map data structure and deliver a written document outlining any required modifications to the file structure or file naming process
- make recommendations on how to make those modifications to create an acceptable format for successful integration into a dispatch center
- complete the GIS map data setup and schedule a follow-up conference call to ensure future map maintenance will incorporate in the modifications

GIS Setup Services also identifies any other map data layers you have today that may further enhance your new software. These map layers could consist of fire hydrants, mile markers, bridges or parcels.

Address Locators

Address locators are a required component of the ESRI geocoding engine used in our latest version of GeoLynx 9-1-1 to plot wireline 9-1-1 calls and search for features. Address locators define the process for searching. They allow users to find address locations and features throughout a variety of individual reference layers such as streets, parcels, address points, and bodies of water.

GeoComm will develop address locators that reside in GeoLynx 9-1-1 to correspond to the updated GIS map data layers. GeoComm will:

- Build address locators used in GeoLynx 9-1-1 for plotting wireline 9-1-1 calls when a map layer is updated
- Build address locators used in GeoLynx 9-1-1 to find map features or locations on the map when a map layer is updated
- Configure the following address locator properties to ensure continued accurate and efficient wireline call plotting:
  - Matching Option Configurations
  - Intersection Connectors
  - Output Options

GeoLynx EOC GIS Setup Services

GeoComm GIS Specialists will complete numerous steps to prepare for the installation of GeoLynx EOC so the final setup meets City of Frisco's preferences. Because GeoLynx EOC is a Web-based GIS it requires a dedicated Web server and other components to host the GIS data on a Web site. To ensure a successful implementation of GeoLynx EOC, GIS Specialists will setup the necessary components and test the GIS data display.

GeoLynx EOC GIS setup services include:

- Loading ESRI's ArcGIS Server Enterprise Standard Edition on the dedicated Web server
- Gathering GIS data the City of Frisco would like displayed in GeoLynx EOC
- Working with the City of Frisco to identify possible existing miscellaneous GIS map data layers that would enhance the GeoLynx EOC GIS data display

- Setting up a map document (.MXD) based on display preferences of the City of Frisco
- Setting up geocoding services
- Creating and publishing map services
- Testing GeoLynx EOC's GIS data display

Services for replication check in/out over Web to ArcGIS desktop clients can be provided for an additional fee, if desired.

Installation

As with all of our projects, GeoComm will follow a systematic approach to installation performed to ensure there is the least disruption to the existing, on-going operations. Installation will be done by GeoComm at the facilities designated by the City of Frisco, according to a mutually agreeable schedule.

After pre-installation elements are complete, GeoComm Implementation Specialists will travel on-site to configure and install the software.

For GeoLynx 9-1-1, while on-site the Implementation Specialist will complete the following:

- Install and configure GeoLynx 9-1-1
- Connect to and configure the ALI data
- Test wireline and wireless calls
- Complete the Acceptance Test Plan

GeoLynx AVL and GeoLynx Mobile will be installed during the same on-site trip. Training on this software will occur during the same week as training.

The CAD interface configuration and installation will occur during the same trip if the custom CAD interface is complete or can be installed during a separate on-site visit according to an agreed upon schedule.

GeoLynx EOC will be installed and trained on during the same on-site trip as the CAD interface configuration and installation or shortly after depending on the City of Frisco's expectations.

GeoComm anticipates the completion of installation and training on all software to be complete prior to March 20, 2009. The final schedule will be dependent on the date of contract signing and can be finalized during contract negotiations. GeoComm has the ability to accommodate a more aggressive schedule if desired by the City of Frisco. Project variables will affect the overall project completion. GeoComm will work with the City of Frisco to determine the project schedule. A formal Gantt project schedule including GeoComm and customer responsibilities will be provided at the onset of the project to ensure a timely agreed upon schedule is met.

On-site Training

For on-site training, GeoComm will provide a combination of classroom instruction and hands-on training. The classroom presentation provides foundational information and introduces software functionality. The hands-on session concentrates on procedural based functionality.

Training will be done by GeoComm at the facilities designated by the City of Frisco, according to a mutually agreeable schedule. Agendas discussing the recommended training format and scheduling training will be reviewed during contract negotiations. A formal Gantt project schedule including training will be provided at the onset of the project.

GeoLynx 9-1-1 User Training

This is accomplished through a combination of the following:

- General Background Discussion
- Functionality Training
- Procedural Training

General Background Discussion

User training highlights the integration of GIS technology, the dispatch GIS software and the 9-1-1 industry. The training session provides the tools for understanding the call processing background required for basic troubleshooting. Some topics covered are:

- Map data layer requirements
- Working relationship with the incoming ALI data
- Function of map data
- ESN boundaries

Functionality Training

The training focuses on basic functionality and features of GeoLynx 9-1-1 and provides the dispatcher with tools needed to take advantage of the command inherent in GeoLynx 9-1-1. The training clearly explains how GeoLynx 9-1-1 will aid a call taker during a 9-1-1 call.

Specific topics covered in the functionality training portion include:

- Drag and Drop map views
- Tool functionality (locating an intersection)
- Responder vehicle drive time recommendations
- Error log reporting (ALI or GIS Discrepancy Report)
- Real-time map markup and road closures
- Wireless call location
- Dynamic vehicle routing (requires optional GeoLynx AVL module)

- Discrepancy tracking procedures
- Hazardous material mapping
- Unique features such as the digital atlas
- 2004 ERG (Emergency Response Guidebook) integration
- Measure tool (aids in determining distances)
- Map data layer requirements
- Entry of coordinates to find a location
- Map navigation (zoom, pan, and specialized tools)

Procedural Training

The procedural or scenario-based training is customized to fit the general procedures followed within each PSAP and the specific needs of the customer. These carefully designed scenarios produce optimum "hands-on" learning environment, allowing dispatchers to use the various tools available for map navigation, as well as other tools in GeoLynx 9-1-1. Trainees will obtain a basic comfort level with the software.

The training curriculum will provide call takers the ability to pull the functionality of GeoLynx 9-1-1 into scenarios that could exist during a 9-1-1 call. Some of the simulated scenarios include:

- Landline 9-1-1 call is received: enable dispatch personnel to leverage visual and text location information displayed within GeoLynx 9-1-1 to reduce emergency response time
- Manual Address lookup: GeoLynx 9-1-1 can locate address and responder information even if call is received over administrative (non-emergency) lines
- AutoSend: test wireline 9-1-1 call – send fax to the appropriate fire and medical agency assigned to the Emergency Service Number
- Error Log: wireline 9-1-1 call. The map location does not match the location confirmed by the caller; ALI information is correct, map location is not accurate – GIS Map Discrepancy Log
- Wireline 9-1-1 call that does not find a match, possible match window comes up under certain circumstances
- Creation of an issue report: map errors as well as ANI/ALI errors can be filed by dispatch personnel. This information is accessible to GIS and administrative staff and aids in the maintenance and refining of map layers and the 9-1-1 database.
- A hunter is injured and calls 9-1-1 from a cellular phone. He is able to give the coordinates of his location from his personal GPS receiver. Determine a location from DDM coordinates.
- Determining the appropriate responders to a wireless 9-1-1 call

GeoLynx 9-1-1 User Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx 9-1-1 User Training	Users	2 hours	6 users 2 administrators	2

Note: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

GeoLynx 9-1-1 System Administrator Training

GeoComm has learned through experience the most effective way to train an administrator is to have them attend a user session first then build on that foundation with administrator content. All our training curriculums have been designed to facilitate the acquisition of basic skills and concepts relating to the use of mapping software in the 9-1-1 call answering process.

GeoComm's system administration training is to provide a basic understanding of the functionality and ongoing maintenance of our GeoLynx 9-1-1 Dispatch GIS system. In addition, we will train system administrators on how to make adjustments to better fit the needs of the individual PSAP. This is accomplished through a combination of background lectures with functionality and scenario based hands-on exercises. The system administration training will be broken down into four basic components:

- System Architecture
- Installation
- Configuration Options
- Maintenance Procedures

System Architecture

GeoLynx 9-1-1 is a client/server based architecture. An overview of the following will be covered:

- GeoLynx Family of Products
- GeoComm Configuration Controller
- GeoComm Message Switch
- SQL Server
- Message Queues
- Geodatabases
- Address Locators

Installation

In the event of a hardware or system failure, GeoLynx 9-1-1 will require reinstallation. Materials are left with the administrator for reinstallation. In addition, the GeoComm Implementation Specialist will train the system administrator(s) necessary processes for reinstallation and reconfiguration of the system.

Maintenance Procedures

Maintenance of map data and settings within GeoLynx 9-1-1 is required to preserve accuracy levels established during the original installation. The GeoComm Implementation Specialist will detail how to add updated map data layers into GeoLynx 9-1-1 and the corresponding settings.

Configuration Options

GeoLynx 9-1-1 includes the ability to customize a multitude of settings and configuration options. Configuration training will focus on the options available to the system administrator to accommodate the need of the individual call taker or PSAP. The configuration training will allow the administrator to develop the skill set for maintaining GeoLynx 9-1-1. GeoLynx 9-1-1 provides user-friendly configuration interface that is password protected to allow for easy manipulation of the software.
Some of the settings and configuration options covered in this course include:

- User account configurations/settings
- .mxd maintenance
- Setting zoom levels
- Map data layer requirements
- Configure system to minimize required maintenance
- Customize map data display (set the desired number of map views)
- Set ALI parsing parameters in the system – wireline and wireless
- Update and add AutoSend numbers
- Setting up hyperlinks
- Define and display tolerance zone on Phase II call
- Special feature modules
- New GeoLynx 9-1-1 server and database architecture *
- GeoComm configuration controller *

  *please see diagram provided in the hardware specifications section

The system administrator(s) will be responsible for understanding how GeoLynx 9-1-1 works and what files are affected by changes within the system. The overall focus of the training will revolve around the various options available for making adjustments within the system. These options relate mainly to display options of map data in the map views at workstations and application options such as the status bar configuration.

GeoLynx 9-1-1 System Administrator Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
System Administrator Training	Administrator	Up to 4 hours	2-4	1

Note: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

GeoLynx AVL Training

The GeoLynx AVL vehicle tracking system is an add-on module to the GeoLynx 9-1-1 Dispatch GIS system. GeoLynx AVL allows dispatchers to locate all emergency vehicles (squad cars, fire trucks, water patrol boats,

ATV, etc.) that are equipped with tracking on a digital map. The training for this product is typically one hour.

Training topics will include:

- Display different indicators (user definable icons) for each kind of vehicle that has vehicle tracking.
- View vehicle positions throughout the day
- Create an accurate record of where your vehicles have been, how long they've been stopped at any given location, and a record of the entire route, thereby creating the capability for "after the fact" reconstruction of a unit's activity, movement, routes of travel, and status throughout a defined period of time.

GeoLynx AVL Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx AVL	Administrator/Users	1 hour	6	1

Note: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

GeoLynx Mobile Training

GeoLynx Mobile is a "mobile" version of GeoLynx 9-1-1. GeoLynx Mobile takes the same mapping functionality present in your communications center and moves it into the field providing your emergency response professionals with information that allows them to make informed decisions. The training time for this product is typically one hour.

Training topics will include:

- How to access image databases stored locally on laptops (i. e. blueprints property images, etc.)
- How to utilize map-centering modes for "hands-free" operation, requiring no user interaction while navigating to a screen
- GeoLynx Mobile provides spatial context from your location to the incident location
- Configure vehicle icons to represent all other vehicles on the AVL network (i. e. ambulance, fire trucks, etc.)
- How to locate an address to find its exact location on the map
- How to utilize the "mark" button to quickly mark a spot on the map in the event they need to return to a specific location
- Dispatcher-to-vehicle and vehicle-to-vehicle text messages can be sent in times of "radio silence"

GeoLynx Mobile Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx Mobile	Administrator/Users	1 hour	6	1

Note: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

GeoLynx EOC Training

GeoLynx EOC training course is designed for the Emergency Operations Center staff serving as the primary administrators and users of the GeoLynx EOC system. These staff members typically are responsible for coordinating resources across many departments to respond to large scale emergency events. The assigned GeoLynx EOC administrator will be responsible for administering and operating the GeoLynx EOC system. We recommend having a primary administrator *and* a secondary administrator who will step in if the primary administrator is not available. There should also be several staff members who share these responsibilities and attend the training sessions.

Training topics will include:

- Create user groups and authentication process
- Basic operations such as zoom-in, zoom-out, pan and measure
- Advanced operations such as drawing, query features, Web communication, plume modeling and GIS layer management
- Update map data
- Event management tools for drawing features on the map
- How to train other users who view map layers displayed by GeoLynx EOC
- Modify system configuration settings

Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx EOC	Administrator	4 hours	4-6	1

Note: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

Optional GeoLynx Sync Training

The Map update server/client software is utilized to transfer map data and configuration files from a central location to individual client machines. This is completed by means of an existing network connection. The GeoLynx Sync software is customized to the specific system setup. The training program and documentation will reflect the custom system configuration. The training for this product is typically two hours.

Training topics will include:

- System setup and maintenance
- Scheduling map data and configuration transfers
- Log successful transfers
- Requesting manual updates

- Trouble shooting possible transfer issues

GeoLynx Sync Training Plan

Course title	Staff	Duration	Class Size	Number of Sessions
GeoLynx Sync	Administrator	2 hours	2	1

Note: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

Acceptance Testing

Upon completion of the installation and training, GeoComm will provide the City of Frisco with an Acceptance Test Plan (ATP), which is used to test all aspects of the product and its performance. Ideally, the ATP is completed immediately following installation and training.

Documents

GeoComm provides "System Administration" and "User" reference manuals with this system showing complete operation, administrative setup/configuration and reference guides.
These manuals are used as part of the training provided after installation of the public safety software.

Document	Staff
GeoLynx 9-1-1 User Reference Manual	Operations User
GeoLynx 9-1-1 System Administration Reference Manual	System Administrators
GeoLynx AVL Reference Manual	System Administrators
GeoLynx Mobile Reference Manual	System Administrators
GeoLynx EOC Reference Manual	System Administrators
Optional GeoLynx Sync Reference Manual	System Administrators/GIS/IT
Acceptance Test Plan	System Administrators

One professionally printed user and administration reference manual is provided for each software license. Digital copies for printing by the customer are available upon request at no charge. Additional professionally printed manuals can be purchased, if desired. A final price can be determined based on the additional manuals purchased.

Additionally, each of our software manuals is included as an Adobe Acrobat .pdf version of the reference manual in the software's help tool. The manuals are sorted and bookmarks are available for easy searching of information located throughout the manuals.

Online Learning Network

For convenience and flexibility, GeoComm offers online interactive training through Internet technology. This is an excellent way to offer new hire training, advanced training, and refresher training. Online training for GeoComm's entire Family of Products is conducted by our Implementation Specialists and is available for two audiences:

I. System Administrator Training
II. User Training

GeoComm offers a variety of product training and demonstrations via the GeoComm Learning Network. Information sharing is maximized in online training sessions for first-time users and advanced users who would like extended course instruction. During online training, customers can view and control GeoComm products, ask trouble shooting questions, and receive live coaching from GeoComm trainers on software functionality. One benefit of online training is that several locations may access the training simultaneously so customers may receive help at the same time, and information and ideas can be exchanged between customers.

An online schedule is available at http://geo-comm. com/learning_network.html and includes registration instructions.

Continuing Education

User groups provide an avenue for customers to gather at a central location and be refreshed on software applications. Usually facilitated annually, these sessions provide customers with the opportunity to renew their knowledge of the GeoComm entire Family of Products and to learn new and advanced features of the software.

GeoComm's friendly and knowledgeable Technical Support Analysts are available to our customers on a twenty-four hour, seven-day a week basis. Our response time will be four hours or less…that is our promise. Over 65 percent of the technical support calls made to GeoComm are resolved the day you place the call.

Software Support and Maintenance

Our response to customer issues is fast because GeoComm develops all proposed software components, trains its technicians on advanced trouble-shooting methods, has remote access to your system, and available web interaction through Internet technology. This results in quicker diagnosis and call closure. Ultimately, this means less downtime and maximum software functionality benefits.

Warranty Period

Following software implementation, GeoComm will provide you with an Acceptance Test Plan to test all aspects of the product and its performance. Once the test plan is completed, a 90-day warranty period will begin. During this period, you will have unlimited access to our Technical Support Analysts via telephone,

e-mail, or fax. Whether it is a simple question or a complex issue, GeoComm will assist you to ensure full performance of your software.

Once the 90-day warranty period ends, GeoComm offers an annual software support and maintenance agreement for a fixed price or you can opt for services as needed at a rate of $95 per hour, minimum one hour.

Software Upgrades

GeoComm recognizes the importance of continued software enhancements and innovation. Our Software Development Team is charged with staying on top of all industry-related developments and to incorporate desirable features into our software. Also, our customers play a significant role by making software enhancement requests and providing feedback either through their support calls or via our customer satisfaction surveys.

It is common practice for GeoComm to issue service releases in between the major version releases to fix or enhance any trouble spots for specific customers and specific purposes.

Software support and maintenance customers are eligible for receipt of all new software version releases and appropriate service releases for the term of their agreement.

GeoComm systematically develops each of the GeoComm software applications to ensure new software enhancements and latest technological changes are incorporated regularly into each software application. GeoComm key staff members review software enhancements recommendations from internal and external customers. Each of these enhancement requests are entered in our Microsoft Dynamics Customer Relationship Management (CRM) software for future review and tracking. Features incorporated into the latest software release are based on a variety of factors such as the number of customers making the request, overall impact to all of our customer base, etc.

Upon completion of a new release, GeoComm's technical staff utilizes CRM to determine which customers are impacted by the new release. GeoComm delivers a formal packet that includes a version upgrade CD, documentation highlighting changes, and technical support guidelines. GeoComm then contacts the customer to verify receipt of the packet and to answer any questions. To aid our technical support staff, information in our CRM tracking system is updated to reflect the installation of the latest software version.

Unlimited Hotline Support

Hotline Support consists of technical assistance and product coaching by trained and experienced specialists in an advisory capacity via a toll-free telephone number, fax, or e-mail, relating to the operation of any portion of the GeoLynx 9-1-1 Software Suite. A Technical Support Analyst will work with you to resolve the issue upon receiving the telephone call, fax, or e-mail. If all analysts are busy assisting other customers, a return telephone call to address the issue will be made within four hours.

Availability

Emergency Calls are addressed 24 hours a day, seven days a week via a toll-free number / pager system. A technical staff member will return your emergency calls requiring immediate attention. GeoComm defines emergency calls as one or more of the following:

- System alarms where software does not process calls, or
- System locks up repeatedly without ability to recover.

During our regular business hours, 8 a.m. to 5 p.m. Central Standard Time, Monday through Friday, excluding holidays, customers are allowed unlimited toll-free calls, e-mails, and faxes related to any concern with the software.

If the hotline is called outside of regular business hours with non-emergency matters that could be addressed during regular business hours, you will be billed for such calls at a rate of $95 per hour (minimum one hour). These fees will be payable, in addition to the normal annual support and maintenance fee, within 30 days of receiving an invoice.

Support also consists of remote access into your software for troubleshooting. This does not cover calls related to issues with other vendors.

Technical Architecture

GeoLynx 9-1-1 is built on the Microsoft .NET framework. This is Microsoft's current and future platform and it is ensured to work with the new Microsoft technology, such as Windows Vista.

In addition, advanced, scalable Database Management System (DBMS) technology is used in GeoLynx 9-1-1 for storing data and configuration settings. Benefits of using SQL server include significantly increased performance capacity for both AVL and CAD. For example, for AVL, Microsoft SQL server allows 100, 1,000, or more units to be moved on the map in a single transaction unlike other DBMS technology which move units individually on a map during a transaction. This same efficiency extends to CAD calls for service.

GeoLynx EOC can be accessed through Microsoft Internet Explorer 7.0 or higher browser.

Detailed server, desktop, and network requirements are included under customer responsibilities and are broken down by software. Map data specifications have also been included detailing the required layers and specifications for use in GeoLynx 9-1-1.

This section also includes the deliverables that will be provided to the City of Frisco throughout this project.

Customer Responsibilities

GeoLynx 9-1-1

GeoLynx 9-1-1 is designed on a server and database architecture so all configuration settings, as well as ALI and optional AVL data, is channeled through the server and database where it is picked up by GeoLynx 9-1-1 client for display of data, therefore a server is required.

Prior to GeoComm's arrival, the City of Frisco must:

- Have a dedicated server for GeoLynx 9-1-1.
- Ensure hardware meeting the required specifications on the following page is available at the time of installation.

System Component	Minimum	Recommended
Description	Typical desktop computer workstation. The GeoLynx Network Server running GeoComm Message Switch Application allows a single connection to E9-1-1 ALI, AVL, and/or CAD systems. The Message Switch Application can distribute data from these subsystems to any network attached GeoLynx 9-1-1 workstation client. The GeoLynx 9-1-1 Network Server can also be used as a GIS map data storage container and GeoLynx 9-1-1 workstation update mechanism. The workstation should be accessible 24/7.	
CPU	2.0 GHz Intel Pentium 4 Processor or AMD equivalent	3.0 GHz Pentium 4 Processor or AMD equivalent
RA	1GB RAM	2GB RAM
Available Hard Drive	10 GB depends on size of map data and size of aerial imagery, if applicable	80 GB hard drive with space available for map data
Display	17'' 800x600, 256 color depth	17" or 21" monitor, 1024x768, 24 or 32 bit color depth
Video Card	32 MB video card	128 MB dedicated memory video card
Resolution	1024x768 capable video card with 17" monitor, 16-bit color [LCD or CRT]	1280x1024 capable video card with 19" monitor, 32-bit color [LCD or CRT]
Operating System	Windows 2000 or XP Pro	
Network Card	10/100 Mbps depends on network speed	10/100/1000 Mbps depends on network speed. GeoLynx 9-1-1 using enterprise geodatabases requires at least a gigabit network.
Serial Ports	2 Port DB9 SIIG PCI Serial Card (Dual com ports) for external connection to 911 equipment and/or AVL subsystem modems on the server application with the GeoComm message switch. Note – other brands than SIIG may be used, however PCI serial cards eliminate resources and interrupt sharing problems between multiple ports to be used concurrently.	
CD-ROM Drive	CDRW Drive	48X DVDRW Drive
Floppy Disk Drive	3.5" 1.44 MB*	
Modem	Optional 56 kbps hardware-based fax modem [for faxing maps]	
Remote Access	Dial-up or high-speed Internet connection	High-speed Internet connection

System Component	Minimum	Recommended
Network	• TCP/IP Protocol installed, static IP address assigned • 10/100/1000 baseT Network Interface Adapter • 10/100/1000 baseT hub for connecting workstations Network speed requirements depend on usage: • 10 baseT: suitable for message switch operations and periodic scheduled file update processes • 100/1000 baseT: suitable for message switch operations and frequent periodic scheduled file update processes, as well as live access of GIS data from a server.	

*Optional in lieu of external USB memory

- Have all computers installed and connected to the LAN. GeoComm is not responsible for setup or maintenance of the LAN connections or LAN infrastructure. Facilities that have not been properly setup upon our arrival may cause significant delay in our portion of the installation and may be subject to an extended visit or additional visits. The cost of these extensions or extra visits shall be invoiced according to our normal labor rates plus additional travel expenses, including any penalties assessed for pre-arranged accommodations.
- Make remote connections available on each workstation. GeoComm will test the connection prior to arrival to ensure it provides the expected connectivity between GeoComm and the City of Frisco workstations. Without remote access, help support will be limited.
- Have RS232 cable or CAT5 cable ran from the ALI Controller location to the GeoLynx 9-1-1 or Message Switch location.
- Provide an operational link from the GeoLynx 9-1-1 location to a NENA standard CAD port on the ALI controller, including a valid and operational ALI data stream. Have the parameters configured on the CAD as outlined by GeoComm's documentation.
- Provide data meeting GeoLynx 9-1-1 map data specifications. Four GIS data layers, in ESRI file geodatabase format, are required in GeoComm's GeoLynx Family of Products. GeoLynx 9-1-1 required map data layers and description of each are included in the table below.

Layers	Description
Roads Layer (polyline)	▪ The roads layer is a required layer (line feature). ▪ No specific file or field names are required. ▪ The following minimum attributes are required: MSAG-valid road names, street ranges, and left and right Emergency Service Number (ESN). ▪ Road names can be concatenated in a single field or parsed out. ▪ Extra spaces and punctuation should be removed from all data fields. ▪ It is recommended that address ranges are broken down into four fields. ▪ Routing attributes are required if routing functionality is desired. ▪ A road code field populated with road type or speed limit is required for computing drive time distance using GeoLynx 9-1-1's routing functionality.
Emergency Service Zones Layer (polygon)	▪ The ESZ layer is a required layer (polygon feature). ▪ No specific file name or field names are needed. However, minimum attributes include emergency service number, fire responder, law responder, and medical responder broken into five fields.
Political Boundaries Layer (polygon)	▪ The boundaries layer is a required layer (polygon feature). ▪ It is recommended that datasets containing more than one jurisdiction have political boundaries all on one layer. ▪ No specific file name or field names are needed. However, two separate fields are required. One attributed with community name and the other attributed with unique codes depicting individual jurisdictions for color rendering and setting zooming levels in the GeoLynx Family of Products.
Address Locator(s)	Address locators define the process for finding address locations and map features based on a variety of different reference data, such as streets, parcels, address points, etc. At a minimum, a single address locator is required for plotting addresses or locations on a roads layer or other primary search layer. GeoComm recommends a refining zone be used with the selected address locator style, but is not a requirement. For refining attributes, GeoComm recommends an ESN or MSAG-valid community name be used.
Other Map Data Layers	
Primary Search Layer	To use a primary search layer to locate wireline 9-1-1 calls it must meet the following requirements: ▪ The primary search layer must contain either point or polygon features. ▪ The house number must be in its own field. ▪ The road name can be concatenated in a single field or parsed out. ▪ The road names should be capitalized and extra spaces should be removed. ▪ Any other information that may be displayed, such as apartment, suite, lot, etc., should be contained in a field other than the combined address field.

Layers	Description
Label Layers	Two options for applying labels to map data layers used in GeoLynx 9-1-1 include: ▪ Dynamic labeling (auto-label) ▪ Annotation text When applying dynamic labels, map data layers are labeled based on the ESRI Standard Label Engine using an auto-label process that generates and positions labels automatically. Dynamic labels are not a separate text feature. GeoLynx 9-1-1 uses the Maplex extension. Maplex for ArcGIS is an automated high-quality cartographic text placement and labeling extension for ArcGIS Desktop. Maplex for ArcGIS uses the proven Maplex text placement engine to produce high-quality cartographic automated labeling for digital and hard copy maps. Maplex for ArcGIS greatly enhances cartographic quality. An annotation text layer is an alternative to dynamic labeling. With annotation, each piece of text stores its own position, text string, and display properties. The main advantage that an annotation label has over dynamic labels is it allows for more precise control over label placement.
Alternate Name Table	In some cases, roads may be known by more than one name or a road name may have multiple spelling variations. For example, Arlington Highway is alternatively known as W Main Street and US Highway 66. The alternate road name table enables GeoLynx 9-1-1 to utilize multiple road names for the same segment of road. To account for these situations, an address locator style should be selected that supports alternative searches, such as US Streets with Zone and AltName or US One Address with AltName. When building an address locator for alternative name searches, we recommend following specifications as outlined by ESRI. These specifications can be referenced in ArcGIS Desktop Help.
Wireless Sector Layer	Due to the increasing use of wireless telephones, it is becoming imperative to be able to locate wireless 9-1-1 calls. GeoLynx 9-1-1 is capable of mapping wireless Phase I and Phase II 9-1-1 calls. To map wireless Phase I calls the following is required: ▪ A wireless sector layer containing polygon features depicting the coverage area of the sector. ▪ The layer file name must be called "cell_l" and include minimum fields such as unique id and wireless carrier information. Attribute data should be capitalized. Note: The wireless mapping functionality can be implemented only after a wireless 9-1-1 network has been established by the wireless carriers and the PSAP is receiving Phase I wireless E9-1-1 calls.
Alias Table	An alias table is a table that contains place names and addresses. An address locator will use this table to search for a place name and then use the associated address to locate the location on the map. For example, in GeoLynx 9-1-1, a user may search for a location by its name, such as Wrigley Field. When the user searches for Wrigley Field, the address locator will reference the alias table and look for Wrigley Field to determine the address 1060 W Addison St to locate on the map. When building an alias table, we recommend following specifications as outlined by ESRI. These specifications can be referenced in ArcGIS Desktop Help.

Notes: GeoLynx 9-1-1 also supports shapefile, ArcSDE geodatabase, and personal geodatabase formats from release 9.2 or higher.

At the time of the software setup GeoComm's GIS personnel will provide our detailed GIS map data specifications. These specifications will provide the layer by layer detailed description and file structure requirements. Ultimately, the quality and availability of the map data provided will directly affect the functionality of the software.

The GIS data layers can be in any coordinate system or projection supported by the ESRI projection engine (State Plane, UTM, etc.), as well as any geodetic datum. If a custom coordinate system is used, the .prj file will need to be supplied to GeoComm for review/verification of use within the GeoLynx Family of Products. It is recommended that all map layers be in the same projection. However, GeoLynx Family of Products do have the ability to display map data layers that are in different projections.

In addition to these GIS data layers, there is no set limit on the number of other GIS data layers that can be integrated into the map display setup.

GeoLynx AVL

The City of Frisco is responsible for purchasing one license of GeoLynx 9-1-1, the prerequisite software, for each license of GeoLynx AVL. In addition, the City of Frisco is responsible for:

- Purchasing and having available a data plan for communication from the mobile units to the communications center.
- Installing approved GPS units in each mobile unit which will be tracked in AVL.

GeoLynx Mobile

Prior to GeoComm's arrival, the City of Frisco must:

- Ensure there is a VPN connection between GeoLynx 9-1-1 and the mobile data terminals which will have GeoLynx Mobile installed on them.
- Ensure mobile data terminals are installed in each vehicle prior to GeoLynx Mobile installation.
- Purchase and have available one mobile data terminal, meeting the required specifications below, for each vehicle being equipped with GeoLynx Mobile

System Components	Minimum	Recommended
Description	Typical mobile data computer	
CPU	2 GHz	3 GHz or higher
RAM	1 GB	2 GB or higher
Available Hard Drive Space	Depending on map data set, 2 GB or more	Depending on map data set, 2 GB or more. GeoComm recommends shock mounted hard drive to protect against vibration and jarring damage in a mobile environment.
Display	800x600 resolution, 256 color depth, with Active Matrix	1024 x 768 resolution, 24 or 32 bit color depth, with Active Matrix; it is desirable to choose a display that is highly visible in a mobile environment which may include side angle viewing and different lighting environments.
Graphics Card	32 MB graphics card	64 MB graphics card or higher
Operating System	Microsoft Windows XP Pro	Microsoft Windows XP Pro
Serial Ports	If your application requires a serial port, GeoComm strongly recommends you select a mobile data computer with a built in hardware serial port. While it is possible to add serial ports with PCMCIA cards or USP adapters, GeoComm has found these to be less reliable in a mobile environment. If your application requires multiple serial ports, GeoComm recommends a mobile docking station built for this purpose. Call GeoComm if you have any questions regarding your GeoComm application and serial port requirements.	
CD / DVD-ROM Drive	Optional	Optional

System Components	Minimum	Recommended
Durability	Some customers prefer typical laptops over more expensive semi-durable or ruggedized mobile data computers. Typical laptops are less expensive but do not last as long in a mobile environment. Some customers use this to their advantage because they can install newer, faster technology as it becomes available, in a sense viewing the typical laptop as disposable.	Semi-durable or ruggedized mobile data computer.

GeoLynx EOC

The City of Frisco is responsible for providing:

- An Internet connection with a minimum speed of 512 KB/sec symmetrical, recommended - 1.5 MB/sec symmetrical, in order to serve the GeoLynx EOC Web site to external site users.
- An Intranet connection.
- A dedicated Web server specifically for GeoLynx EOC built to the specifications listed below.

System Component	Description
Base Unit	Dual Core Xeon Processor 5160 4 MB Cache, 3.0 GHz, 1333 MHz FSBPE2900 (223-4721)
Processor	Dual Core Xeon 2nd Processor 5160, 4 MB Cache, 3.00 GHz 1333 MHz FSB, PE 2900 (311-6232)
Memory	8 GB 667 MHz (4x2 GB), Dual Ranked Fully Buffered DIMMs (311-6197)
Keyboard	Keyboard, USB, Black (310-8170)
Video Card	Broadcom TCP/IP Offload EngineNot Enabled (430-1765)
Hard Drive	73 GB 15K RPM Serial-Attach SCSI 3 Gbps 3.5-in HotPlug HardDrive (341-3029)
Hard Drive Controller	PERC6i SAS RAID Controller Internal with Battery (341-5699)
Floppy Disk Drive	No Floppy Drive (341-3052)
Operating System	Windows Server 2003 R2 Standard x64 Edition with SP2 Includes 5 CALs (420-7122)
Mouse	Optical Two-Button Mouse USB, Black (310-8172)
NIC	Embedded Broadcom NetXtreme II5708 GigabitEthernet NIC (430-1764)
CD-ROM or DVD-ROM Drive	16X DVD-ROM for PowerEdge 2900 (313-5854)
Sound Card	Tower Bezel Included (313-4363)
Documentation Diskette	Electronic Documentation and OpenManage CD Kit, PE2900 (310-7402)
Additional Storage Products	73 GB 15K RPM Serial-Attach SCSI 3 Gbps 3.5-in HotPlug HardDrive (341-3029)
Feature	Integrated SAS/SATA RAID 1 PERC 6/i Integrated/SAS6/iR (341-5754)

System Component	Description
Feature	Tower Chassis Orientation (313-5853)
Service	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, 2YR Ext (960-9002)
Service	GOLD Enterprise Support: 7x24 Escalation Manager, Hw/Sw Tech Phone Support, Enterprise Command Center, 3Yr (960-9252)
Service	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, Init YR (970-4770)
Service	Dell Hardware Warranty Plus Onsite Service Initial YR (984-1467)
Service	Dell Hardware Warranty, Extended Year(s) (984-1469)
Installation	On-Site Installation Declined (900-9997)
Misc	Redundant Power Supply with Y-Cord for PowerEdge 2900 (310-7405)

GeoComm Deliverables

GeoLynx 9-1-1

GeoComm will deliver the following elements to the City of Frisco as part of this project:

- GeoLynx 9-1-1 software license(s)
- Product Installer CD
- Software manual(s)
- On-site installation
- Acceptance test plan
- One on-site system administrator training session
- Two on-site user courses

GeoLynx AVL

GeoComm will deliver the following elements to the City of Frisco as part of this project:

- GeoLynx AVL software license(s)
- Product Installer CD
- Software manual(s)
- Pre-installation IP AVL implementation services
- On-site installation
- Acceptance test plan
- On-site training

GeoLynx Mobile

GeoComm will deliver the following elements to the City of Frisco as part of this project:

- GeoLynx Mobile software license(s)
- Product Installer CD
- Software manual(s)
- On-site installation
- Acceptance test plan
- On-site training

GeoLynx EOC

- GeoLynx EOC software license(s)
- Software manual(s)
- On-site installation
- Acceptance test plan
- On-site training

Custom CAD Interface

- Interface development
- Configuration
- On-site installation

Supplemental Information

Texas Government Code Section 2252.002 Non-resident bidders. A governmental entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is not less than the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

In order to make this determination, please answer the following questions:

4 Address and phone number of your principal place of business:
GeoComm
601 West St. Germain Street
St. Cloud, MN 56301
Telephone: (320) 240-0040

5 Name and address of principal place of business, and phone number of your company's majority owner:
GeoComm
601 West St. Germain Street
St. Cloud, MN 56301
Telephone: (320) 240-0040
Majority Owners: Tom Grones and Dan Rudningen (320) 240-0040

6 Name and address of principal place of business, and phone number of your company's ultimate parent company:
GeoComm
601 West St. Germain Street
St. Cloud, MN 56301
Telephone: (320) 240-0040

MINORITY/WOMAN-OWNED BUSINESS PARTICIPATION

It is the policy of the City of Frisco to involve small businesses and qualified minority/womenowned businesses to the greatest extent possible in the procurement of goods, equipment, services and construction projects. To assist us in our record keeping, please list below the names of the minority or woman-owned firms you would be utilizing in this bid, and note the monetary involvement:

NAME OF FIRM	TELEPHONE #	$ INVOLVEMENT
Not applicable		

AFFIDAVIT OF NO PROHIBITED INTEREST
(Supplemental Information)

(I) (WE), the undersigned declare and affirm that no person or officer in (my) (our) firm, business, corporation, or board has or will have during the term of this contract a prohibited interest as that is defined in City Charter.

(I) (WE) further understand and acknowledge that the existence of a prohibited interest at any time during the term of this contract will render the contract voidable.

Name of Contractor: GeoComm

Title of Officer: Dan Rudningen, Vice President of Sales and Marketing

Signature of Contractor: _____

Date: November 7, 2008

ACKNOWLEDGMENT

STATE OF MINNESOTA *
*
COUNTY OF STEARNS *

BEFORE ME, the undersigned authority, on this day personally appeared, a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of GeoComm, for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN under my hand and seal of office this the ____ day of _____, 2008

_____

Signature of Notary Public in and for the State of Minnesota STAMP

SUPPLEMENTAL INFORMATION

Please provide the following information for contract development.

Is your firm?

1. Sole Proprietorship		YES	X	NO
2. Partnership		YES	X	NO
3. Corporation	X	YES		NO

If company is a sole proprietorship, list the owner's full legal name:

_____

If company is a partnership, list the partner's full legal name(s):

_____
_____
_____
_____

If company is a corporation, list the full legal name as listed on the corporate charter:

Geo-Comm, Inc.

Is this firm a minority, or woman-owned business enterprise?

X NO _____ YES If yes, specify (____) MBE (_____)

WBE

Has this firm been certified as a minority/woman-owned business enterprise by any governmental agency? X NO _____ YES

If yes, specify governmental agency: ___

Date of certification: _____

For explanation please see Terms and Conditions Item #43

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire is being filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.

By law this questionnaire must be filed with the records administrator of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY
Date Received

1	**Name of person doing business with local governmental entity.** **GeoComm**
2	☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)
3	**Name each employee or contractor of the local governmental entity who makes recommendations to a local government officer of the governmental entity with respect to expenditures of money AND describe the affiliation or business relationship.** **Not applicable.**
4.	**Name each local government officer who appoints or employs local government officers of the governmental entity for which this questionnaire is filed AND describe the affiliation or business relationship.** **Not applicable.**

Adopted 11/02/2005

FORM CIQ

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor or other person doing business with local governmental entity

5. Name of local government officer with whom filer has affiliation or business relationship. (Complete this section only if the answer to A, B, or C is YES.

This section, item 5 including subparts A, B, C & D, must be completed for each officer with whom the filer has affiliation or other relationship. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income from the filer of the questionnaire? ☐ Yes ☐ No

B. Is the filer of the questionnaire receiving or likely to receive taxable income from or at the direction of the local government officer named in this section AND the taxable income is not from the local governmental entity? ☐ Yes ☐ No

C. Is the filer of this questionnaire affiliated with a corporation or other business entity that the local government officer serves as an officer or director, or holds an ownership of 10 percent or more? ☐ Yes ☐ No

D. Describe each affiliation or business relationship.

Not applicable.

6.

Signature of person doing business with the governmental entity Date

November 7, 2008
Date

Adopted 11/02/2005

Publicity

Any publicity, news releases, and/or advertising pertaining to this RFP and/or the awarding of any contract relating to the RFP may not be made without prior written approval of the City.

PROPOSER WARRANTIES

A. Proposer warrants that it is willing and able to comply with State of Texas laws with respect to foreign (non-state of Texas) corporations.

B. Proposer warrants that it is willing and able to obtain an errors and omissions insurance policy providing a prudent amount of coverage for the willful or negligent acts, or omissions of any officers, employees or agents thereof.

C. Proposer warrants that it will not delegate or subcontract its responsibilities under an agreement without the prior written permission of the City of Frisco.

D. Proposer warrants that all information provided by it in connection with this proposal is true and accurate.

Signature of Official: _____

Name (typed): Dan Rudningen

Title: Vice President of Sales and Marketing

Firm: GeoComm

Date: November 7, 2008

CITY OF FRISCO PURCHASING DIVISION

SIGNATURE FORM

City of Frisco GIS Software for Emergency Response

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all product/service upon which prices are extended at the price offered, and upon the conditions in the specifications of the Request For Proposal.

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination to control the price of product/service bid on, or to influence any person or persons to bid or not to bid thereon."

Name of Bidder: GeoComm

Address of Bidder: 601 West St. Germain Street, St. Cloud, MN 56301

Telephone Number: (320) 240-0040 Fax: (320) 240-2389

E-mail address: drudningen@geo-comm.com

By: Dan Rudningen (print name) Cash Discount Terms: Negotiable

Title: Vice President of Sales and Marketing Federal ID #/SSN #: 41-1811590

Signature: _____

Acknowledgement of Addenda: #1 X #2_____ #3_____ #4_____ #5_____

A key to GeoComm's success is our extensive expertise in software development. Our capacity to bring the software solution proposed to successful fruition is evident by the extent of our embedded customer base using our software products and the distribution of these applications throughout a majority of states in the United States.

Complete system descriptions of all proposed GeoComm software are included on the following pages. They include:

- GeoLynx 9-1-1 Dispatch GIS software
- GeoLynx AVL Automatic Vehicle Location software
- GeoLynx Mobile Mobile Response GIS software
- GeoLynx EOC Emergency Operations Center software

As an option to the City of Frisco, GeoComm has also included GeoLynx Sync, GeoComm's interoperable replication and propagation software.

GeoLynx® 9-1-1

DISPATCH GIS

Locating and displaying emergency incidents in your jurisdiction is fully automated by installing GeoLynx 9-1-1. When a 9-1-1 call is placed, GeoLynx 9-1-1 automatically captures the address from the ALI stream and instantly plots an arrow at the caller's location on your digital base map.

GeoLynx 9-1-1 is a full-featured, professional-level desktop mapping software package specifically tailored for 9-1-1 emergencies.

Benefits and Features

- Instantaneous call-plotting of wireline and wireless Phase I and Phase II calls on a map
- Built on ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to your dispatch center
- Built on a Microsoft .NET framework, bringing Microsoft's most current and future technology to your dispatch center
- New modern Vista-inspired command and control style user interface to streamline 9-1-1 call-taker and dispatcher workflows using GIS to speed emergency response time
- Built-in basic hazard plume modeling and advanced ALOHA chemical plume modeling
- Integrated electronic Emergency Response Guide (ERG) database with isolation protocol mapping
- GeoLynx 9-1-1 can be configured to view Web GIS data for real-time weather maps and natural hazard maps such as wildfires and floods
- Drive time polygons and barrier routing to dispatch closest responders and concentrate search efforts based on drive time and distance
- Integration of Pictometry technology offers an additional location display functionality
- Simple navigation to all functionality options
- Hyperlink feature for users to reference additional information such as structure photos, floor plans, emergency preparedness documents, etc.

- Intelligent 9-1-1 call aging with no user interaction to easily determine call age
- Easily view, print, and search GIS data
- Specifically developed for use in your 9-1-1 environment
- Sophisticated GIS engineering with simple user operations
- Raster and vector layer translucency in same map view
- Greatly enhanced cartographic map rendering capabilities
- Re-projects both raster and vector GIS datasets on-the-fly
- Directly reads many supporting GIS layers, formats, projections, and coordinate systems on-the-fly with no conversion or translation required
- Open API for seamless third-party software integration
- Immediate detection of GIS data and ALI errors
- E-mail or fax mapped call locations
- Expandable to other modules in the software family to enhance dispatch mapping system specifically geared toward 9-1-1 emergencies such as emergency notification, automatic vehicle tracking, statistical crime mapping, and in-vehicle mapping
- Life-saving information is visible and easily accessible with GeoLynx 9-1-1

Supported Formats

GeoLynx 9-1-1 is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI file geodatabase
- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefile

In addition, services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx 9-1-1.

System Architecture

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations.

Because GeoComm is an ESRI business partner, we are able to provide the latest version of GeoLynx 9-1-1 dispatch mapping software. GeoLynx 9-1-1 uses ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to 9-1-1 dispatch centers.

GeoComm recognizes the need for the most current technology to be implemented to ensure the software is maintained and supported for years to come. Our proposed ArcGIS framework is the most current and future technology platform from ESRI.

GeoLynx 9-1-1 is also built on the Microsoft .NET framework. This is Microsoft's current and future platform and it is ensured to work with the new Microsoft technology, such as Windows Vista.

Additionally, advanced, scalable Database Management System (DBMS) technology is used in GeoLynx 9-1-1 for storing data and configuration settings. Benefits of using SQL server include significantly increased performance capacity for both AVL and CAD. For example, for AVL, Microsoft SQL server allows 100, 1,000, and more units to be moved on the map in a single transaction unlike other DBMS technology which move units individually on a map during a transaction. This same efficiency extends to CAD calls for service.

User Interface

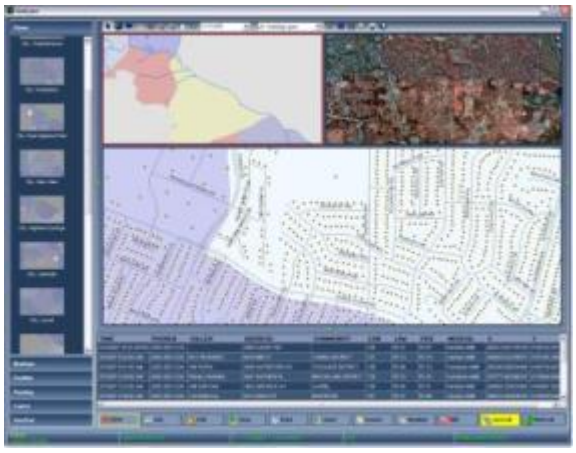
The GeoLynx 9-1-1 user interface (UI) is a command and control (C2) style. C2 UIs are more like dashboards, control panels, and cockpits, unlike office automation applications where there are many menus and dialog boxes to navigate. The intent is to put all needed information and functionality on a single screen, to enable users do their jobs more efficiently, in high stress, high speed environments.

Immediate access to features and functions in the side panels are available in the GeoLynx 9-1-1 display. Some major features include HazMat, Routing, GeoLynx Stats, Markups, and much more. The ability to expand the map is useful when GeoLynx 9-1-1 is on a large format screen or projected on a wall of a PSAP as an overview, with no human interaction. With no user, there is no need for the human interface tools.

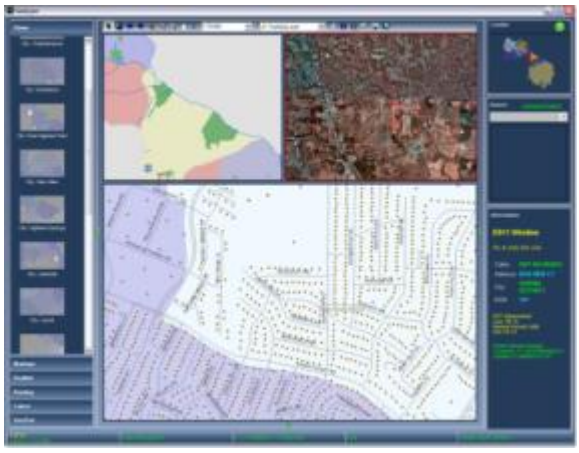
To maximize the map view display, the panels to the left, right, and bottom of the main map view can be hidden. Any combination of panels can be hidden:

Original view.

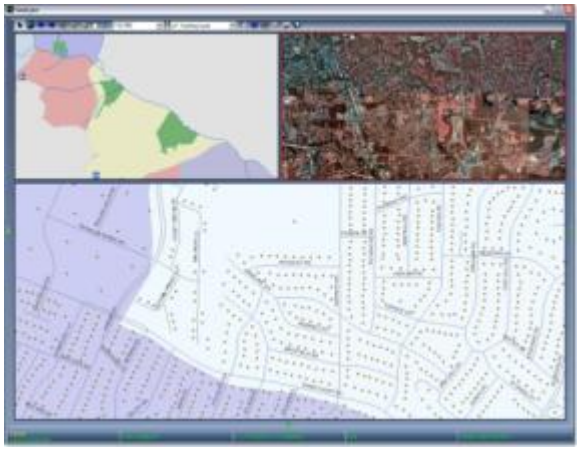
After expanding the left side of the map view.



After expanding the right side of the map view.

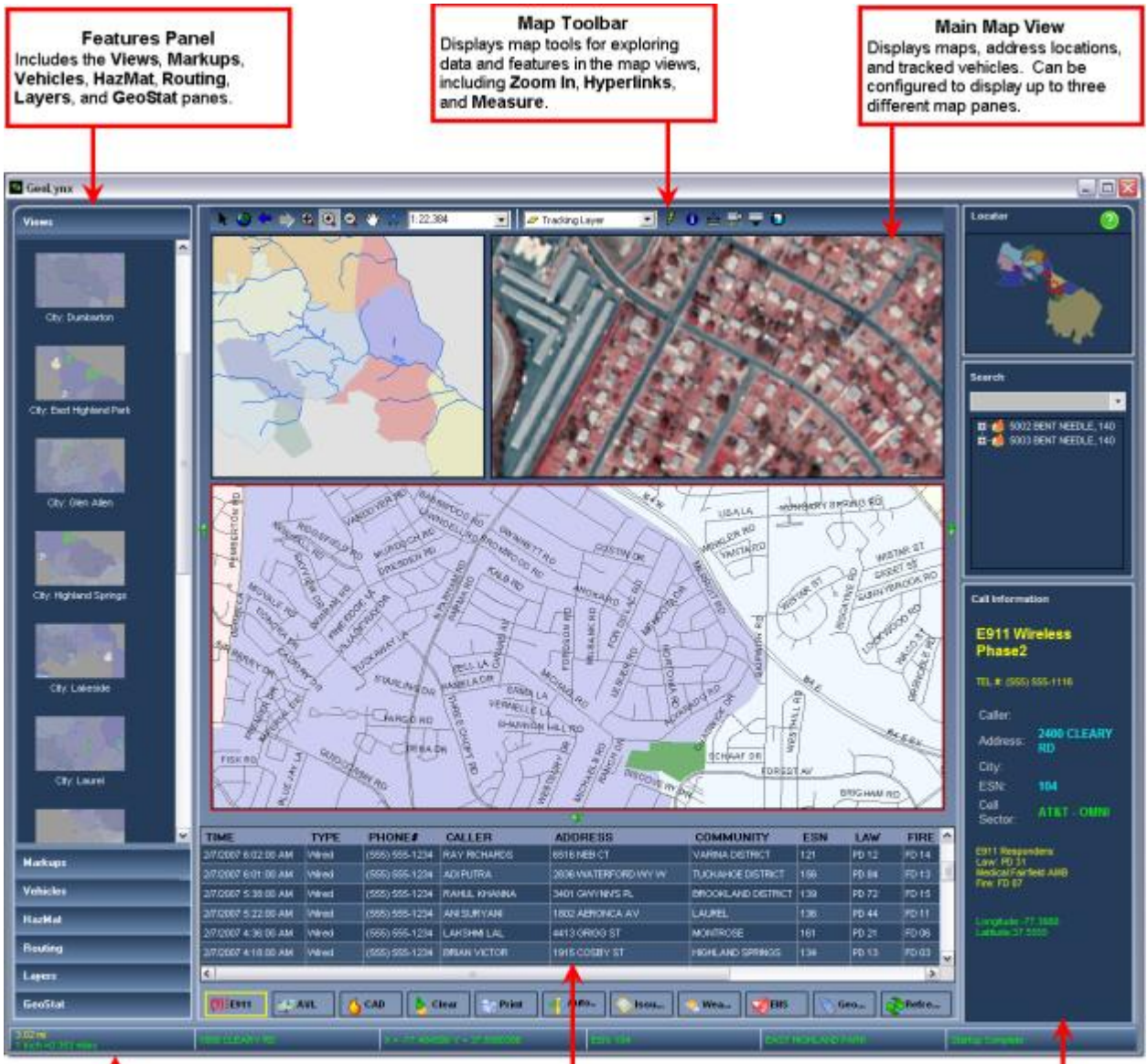


After expanding the bottom of the map view.



After expanding all sides of the map view.

GeoLynx 9-1-1 Screen Components



Features Panel

The features panel includes several features to help your organization more effectively navigate to specific map views, display map layers, use geographic information, and manage emergency incident statistics.

Map Toolbar

As you work with your map, you can easily change how you view the data it contains. Most of the tools for navigating such as zoom in, zoom out, pan, and full extent are found on the map tools toolbar, the topmost toolbar in the GeoLynx 9-1-1 window. Because GeoLynx 9-1-1 is built on ESRI's ArcGIS Engine these tools resemble those found in other ESRI products such as ArcView.

Main Map View

The main map view displays the GIS data, ALI, and any tracked vehicles and is configurable for up to three map panes. So users can customize their individual map display to meet their emergency dispatch needs.

Status Bar

GeoLynx 9-1-1 displays a status bar at the bottom of the application window at all times. The status bar contains information about the current mouse pointer location. The system administrator can configure the status bar to display any combination of the following:

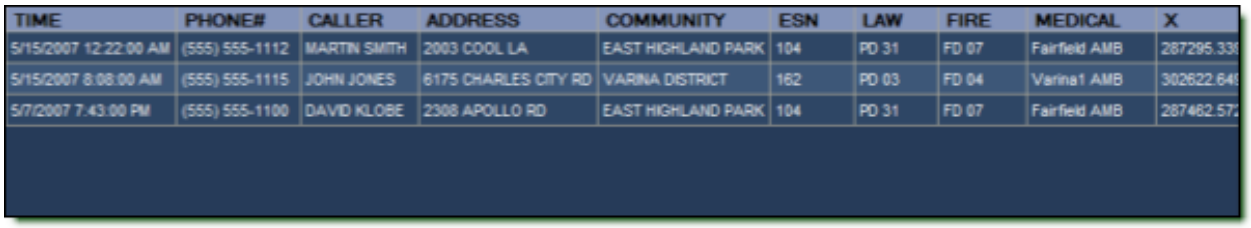
- Current zoom level of the map (width of the map in miles)
- Calculated street address at the mouse pointer
- Coordinates of the mouse pointer:
  - In decimal degrees
  - In degrees/minutes/seconds (DMS)
  - In degrees/decimal minutes (DDM)
- ESN of the current mouse pointer location

Results Grid

The results grid displays the results of several GeoLynx 9-1-1 functions. Most commonly the results grid will display a list of the E9-1-1 calls received by your organization. By double-clicking any of the calls in the list, the map views zoom to that call location. The specific fields that will display can also be configured.

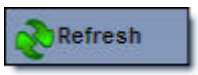
Other data which may display in the results grid includes

- Plume model results
- GeoLynx Stats query results
- Results for routing requests
- CAD calls
- AVL information



TIME	PHONE#	CALLER	ADDRESS	COMMUNITY	ESN	LAW	FIRE	MEDICAL	X
5/15/2007 12:22:00 AM	(555) 555-1112	MARTIN SMITH	2003 COOL LA	EAST HIGHLAND PARK	104	PD 31	FD 07	Fairfield AMB	287295.33
5/15/2007 8:08:00 AM	(555) 555-1115	JOHN JONES	6175 CHARLES CITY RD	VARINA DISTRICT	162	PD 03	FD 04	Varina1 AMB	302622.64
5/7/2007 7:43:00 PM	(555) 555-1100	DAVID KLOBE	2308 APOLLO RD	EAST HIGHLAND PARK	104	PD 31	FD 07	Fairfield AMB	287462.57

Features Toolbar

Button	Description
	Displays, in the results grid, a list of the E9-1-1 calls received in your center.
	Accesses AVL add-on module.
	Accesses optional CAD features.
	Clears all symbols from the map views and all data from the call information pane.
	Prints, e-mails, faxes, and saves a map view.
	Sends a map view by fax, fax server, e-mail, or printer to preprogrammed destinations.
	Logs ANI/ALI and GIS issues.
	Accesses weather information, if configured.
	Accesses ENS add-on module.
	Displays a list of cell sectors and locates map features for wireless calls.
	Refreshes the database connection and redraws the map.

Information Panel

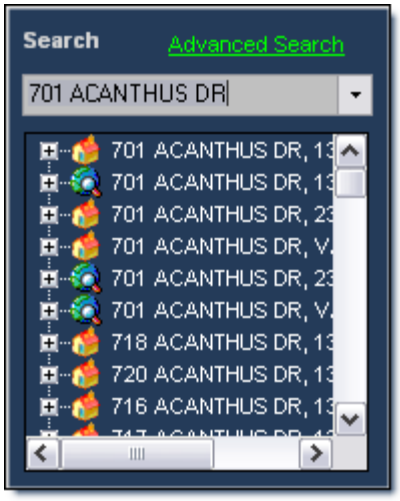
The information panel includes the Locator Pane, Search Pane, and Call Information Pane.

Locator Pane

The locator pane displays an overview of the jurisdiction. This panel can be used to quickly move the active map view to another location in your jurisdiction with the click of a mouse. any time, the user can click on the locator map and the active map view will automatically zoom to that location.

At

Search Pane



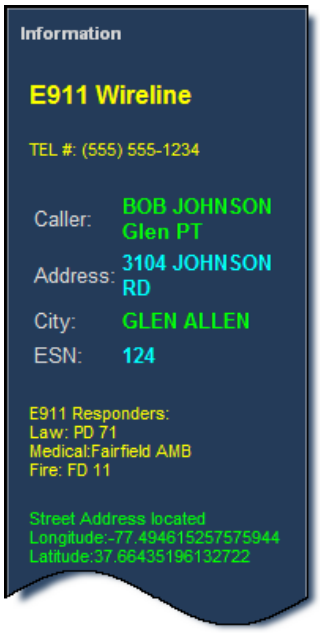
The search pane is an interactive pane that allows you to manually map a location.

Map a location by typing an address or street in the search field. You can also click the drop-down arrow to scroll through a list of roads in your jurisdiction.

Additionally, this search pane is used to find features in any of your GIS map data layers which are searchable. This one search function is streamlined so users only need to go to one location to find items within their GIS map data.

Leveraging locator technology in ArcGIS you are able to create aliases which allow searches to be done within GeoLynx 9-1-1 using the search pane. For example, you can type Old City Park into the search pane which will then zoom to the point or parcel containing the attribute information. These locators can be developed for an additional fee by GeoComm's GIS department, if desired.

Call Information Pane

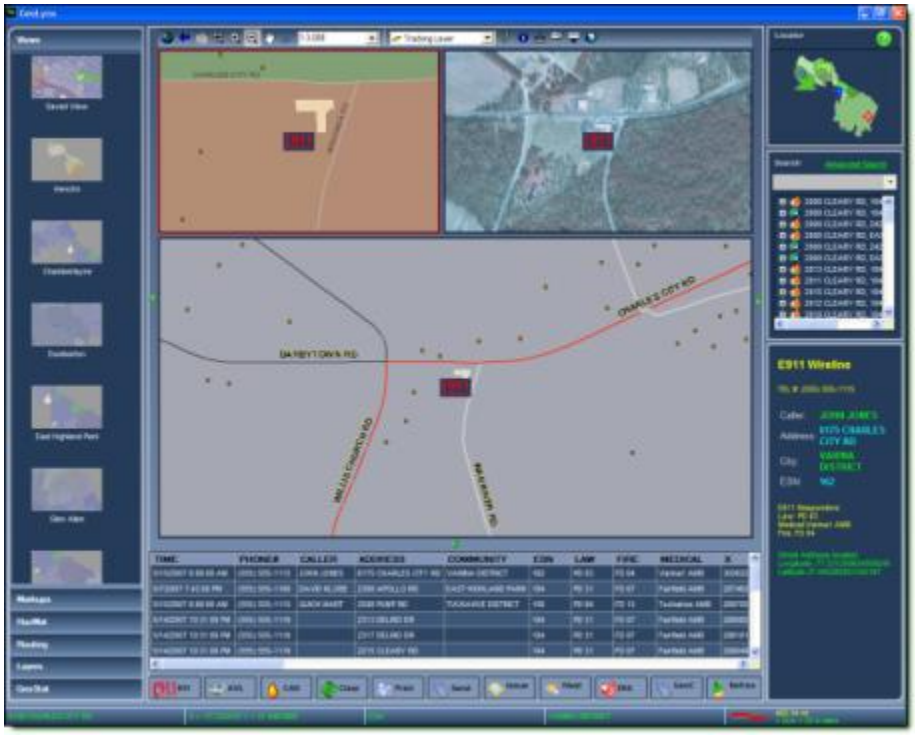


Important, detailed information related to the current dispatch environment including ALI, responder information, and vehicle list populate in the information pane to aid the call-taker.

This data displays automatically for an incoming call. It also displays when you select a call from the results grid.

Wireline E9-1-1 Call Plotting

GeoLynx 9-1-1 displays the most immediate and important information in an emergency call situation on one screen. When an E9-1-1 call is received, address, caller name, and responding agency data is parsed out of the ALI data stream sent from the E9-1-1 ALI controller. The map automatically searches the primary and secondary GIS data layers and then locates the address, where appropriate, in all map views with an arrow and the caller and responder information panels populate. The active call location symbol also displays in the locator map.



GeoLynx 9-1-1 taps directly to the ANI/ALI controller by way of a serial connection on the Computer-Aided Dispatch (CAD) port, via the IP network, or software API connection depending on the specific equipment present. When an E9-1-1 call is received, GeoLynx 9-1-1 accepts the ANI/ALI data stream and parses the information for name, address, and phone number (ANI and/or p/ANI as appropriate).

When the call is processed, the map display centers on the call location which is marked by a designated icon. The icon display changes when a new E9-1-1 call is received to distinguish the current call from past calls.

Wireless E9-1-1 Call Plotting

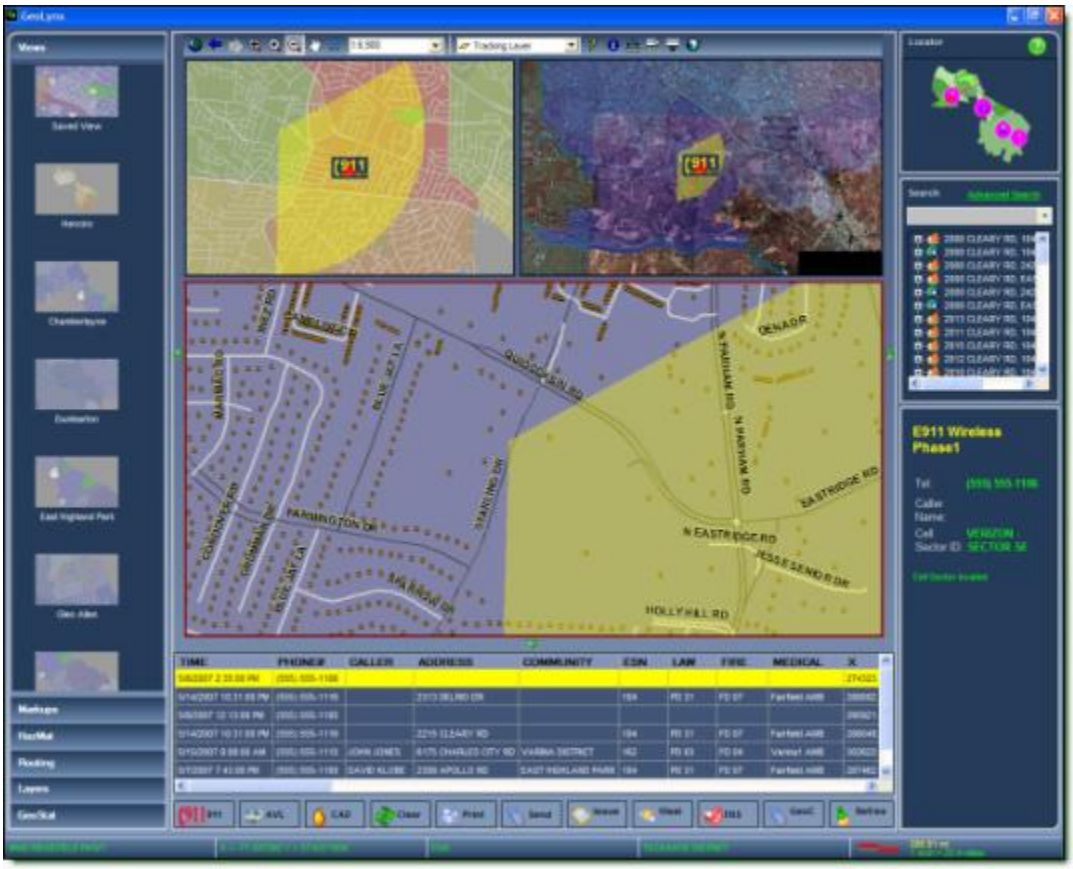
GeoLynx 9-1-1 provides configuration of different location processing methods based on class of service and provider. When a 9-1-1 call is received, GeoLynx 9-1-1 will examine the class of service and provider to determine the type of call (wireline, wireless PI, wireless PII, wireless PII with PI attributes and no PII attributes – indicating that a re-bid is required to receive x,y coordinates). Symbology is configurable by the system administrator for each class of service.

GeoLynx 9-1-1 can also list map features from any layer contained within a call's coverage area (for Wireless Phase I) or confidence interval (for Wireless Phase II).

Phase I Wireless Call

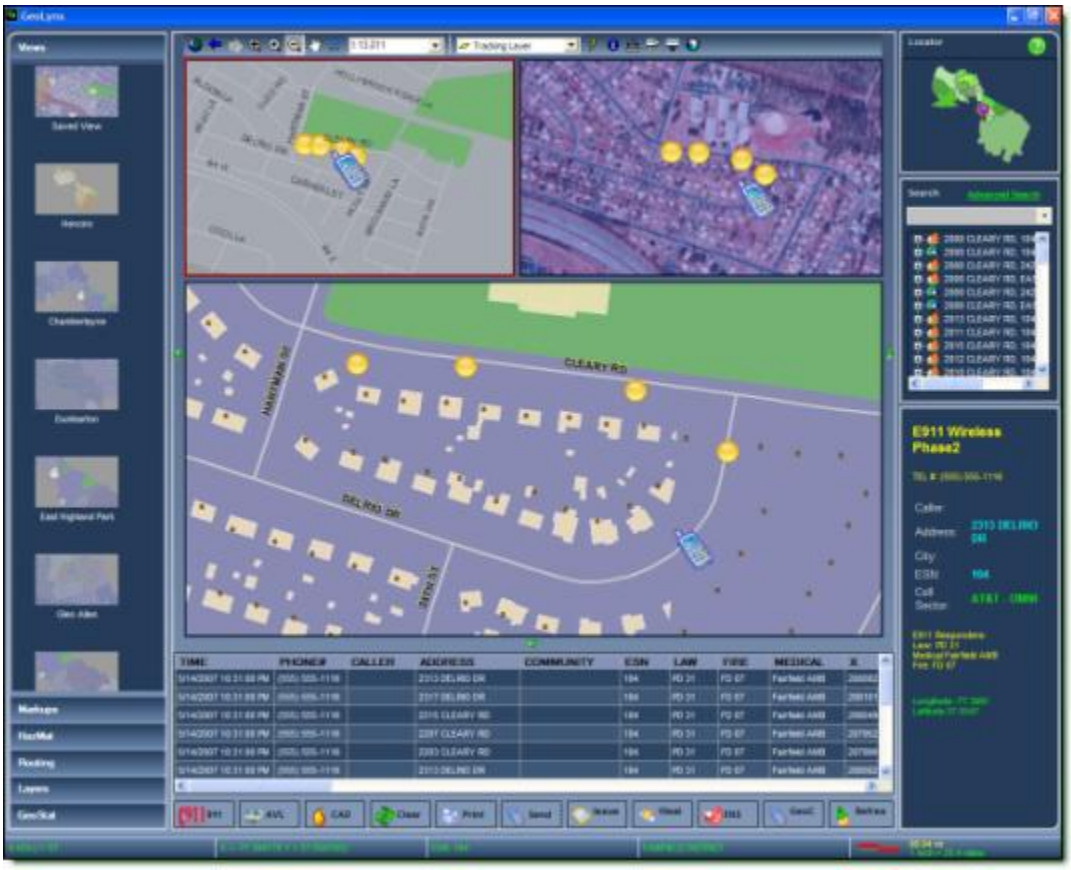
When GeoLynx 9-1-1 receives a Phase I wireless call the coverage information is received from the ALI data stream. The map of the cell sector or omni-directional coverage area displays on the map.

The map indicates the wireless caller was likely within the cell site/sector coverage area when they pressed send on their phone to dial 9-1-1.



Phase II Wireless Call

When GeoLynx 9-1-1 receives a Phase II wireless call the x,y coordinate location on the map is found from the ALI data stream for that call. The screen below also shows ALI rebid locations of the wireless call.



Phase II Confidence Interval / Tolerance Zone

To display the confidence interval the cell phone provides or GeoLynx 9-1-1 utilizes a distance set as a default by the system administrator. The circle defines the highest probability where the caller may be located. GeoLynx 9-1-1 can automatically and manually search the tolerance zone for closest features, such as parcel polygons, building footprints, and address points.

GeoLynx 9-1-1 Advanced Features

Advanced features in GeoLynx 9-1-1 include:

- 9-1-1 Call Aging
- Address Locators
- Routing
- Pictometry Integration
- HazMat Mapping
- Hyperlinks
- Web Map Services
- Restricted Internet Access

9-1-1 Call Aging

GeoLynx 9-1-1 can be configured to age calls by changing call icons and colors after calls reach certain age thresholds and then eventually clearing icons from the map automatically, with no user interaction. At a glance users can see the age of the call by color gradations. The maximum time the call displays is configurable. When a new call comes in, by glancing at the map the user could tell if any other calls were placed from that location or nearby locations within the past two days and also determine by the color of the icons how long ago other calls were placed. For example, the call aging is set to three days and multiple calls have been placed from a particular address within those three days. When another call comes from the same location within those three days, the telecommunicators would be able to reference that information and communicate to the emergency responder that there had been prior calls for similar issues such as a domestic.

Address Locators

GeoLynx 9-1-1 uses ESRI Locators and supports multiple locators so it can search locators for a street centerline layer, a GPS point layer, lakes layer, and other layers all at once. This is ESRI's current geocoding technology, and the manner in which GeoLynx 9-1-1 converts text such as a street address, common place name, or other features such as a hospital location, lake name, or mile markers into mappable x,y coordinates. Essentially, anything you can search for can be typed into the search tool and be potentially located. This one search function is streamlined so users only need to go to one location to find items in their GIS map data. The advantage of this method of searching is that it is very fast and supports searches for similarly spelled words – so even if there is a misspelling in a street name or other location name, it can still be found.

Routing

GeoLynx 9-1-1 generates routes between two locations on the map and will depict the path to follow. Advanced GeoLynx 9-1-1 routing features include:

- routes around restricted areas and barriers
- multiple stop routing
- drag and drop
- quick one button route finders for use when mapping a 9-1-1 call or CAD incident
- "contraflow" – route in the wrong direction down one-way lanes
- computes drive time polygons (isochrones)
- searches map features (such as addresses and buildings) along a route or drive time polygon.

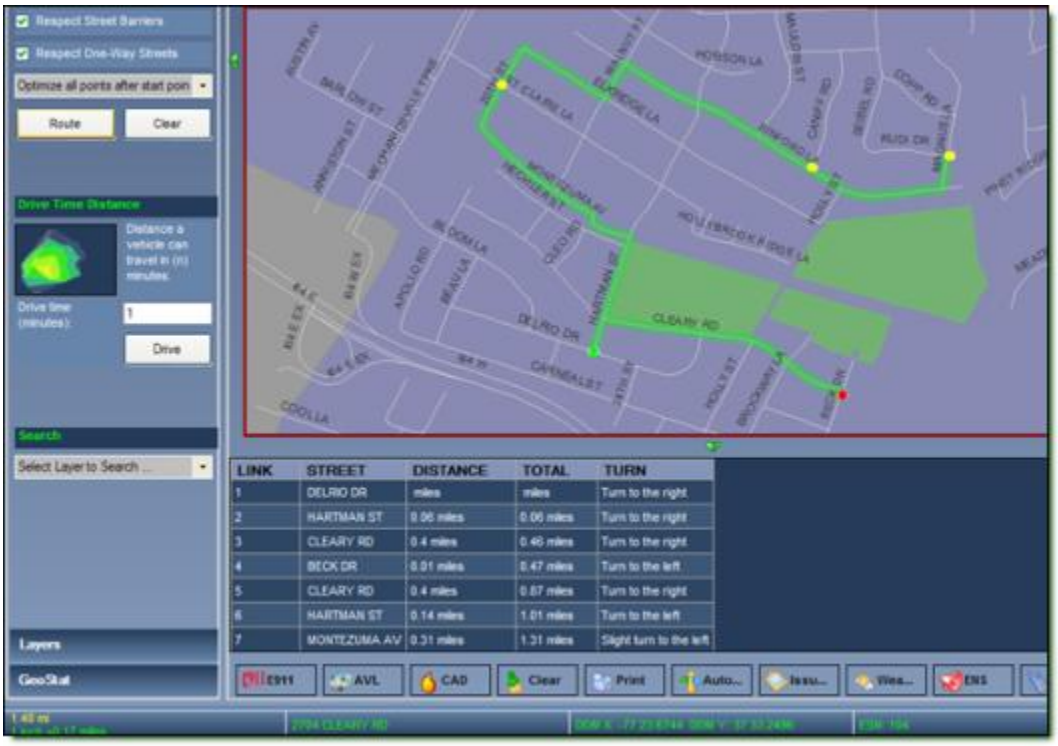
GIS routing functionality is related to the connectivity and attributes associated with the map data. The accuracy of a routing inquiry correlates to the accuracy of the map data. However, in certain situations, user interpretation may be needed to determine necessary route variations based on real world situations. Additional fields and consideration needs to be taken for implementing routing functionality.

Restricted Areas/Barriers Routing

GeoLynx 9-1-1 routes around restricted areas and barriers. Users can draw barriers and restricted areas on the map. For example, a user can add a barrier to the map displaying a flooded road, GeoLynx 9-1-1 will automatically propagate the barrier information to all computers on the GeoLynx 9-1-1 system so the barriers will be displayed and factored into routing requests at all workstations.

Multiple Stop Routing

GeoLynx 9-1-1 supports multiple stop routing. For example, if units are assigned to make stops at multiple locations of equal priority, GeoLynx 9-1-1 can compute the best route to take in order to visit all stops in the least amount of drive time.



Drag and Drop Routing

A user can click on a location on the map, such as a call location, vehicle, CAD incident, etc., and drag and drop it into the routing panel to be included in a route computation.

One Button Route Finders

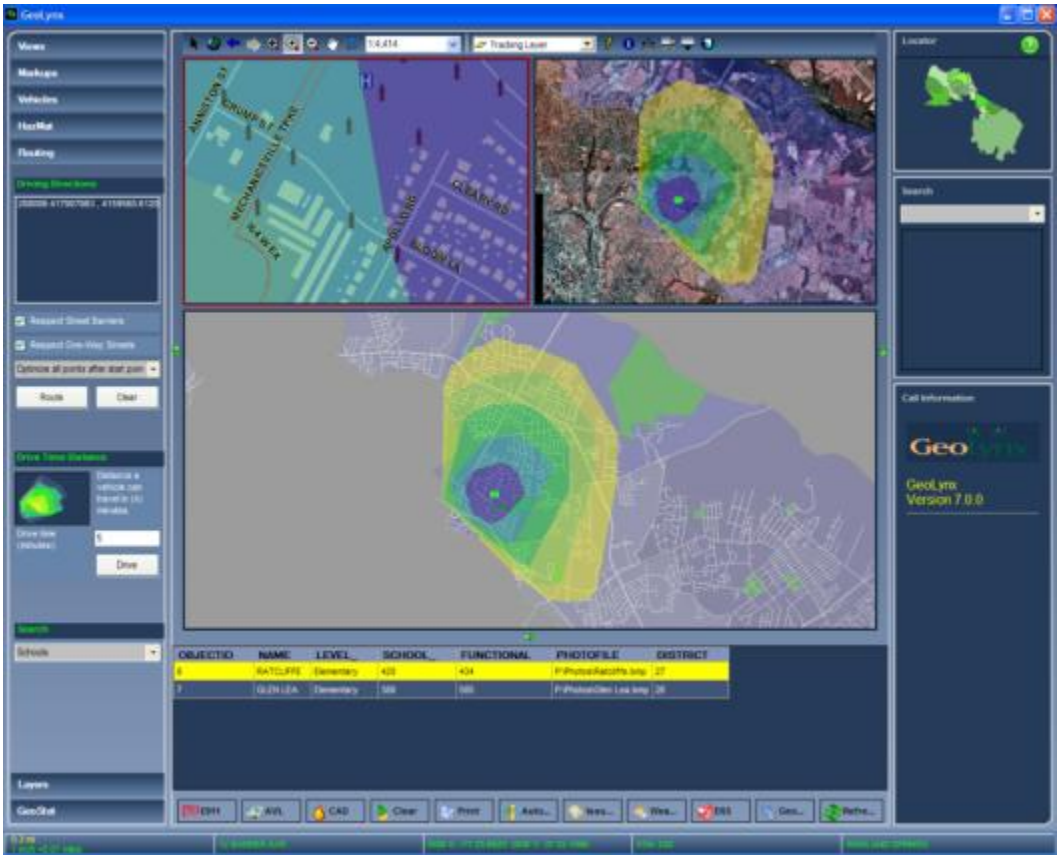
One button route finders can be used after mapping a 9-1-1 call. By clicking the route police button, GeoLynx 9-1-1 will determine the correct police department based on the Emergency Service Zone (ESZ) of the call and automatically compute a route from that location.

Contraflow

Routing in the wrong direction down one-way lanes is typically used during evacuations. For example, it can be used to open all eight lanes of an expressway for traffic to flow away from a hazard, such as the coast during a hurricane.

Drive Time Polygons (isochrones)

GeoLynx 9-1-1 drive time polygons depict on the map the distance you can drive in any direction from a particular point in a given amount of time. This feature is useful to see how far an emergency response vehicle can travel from a particular location in a set amount of time or to see how far any vehicle could travel in any direction from the site of a reported 9-1-1 incident in a set amount of time.

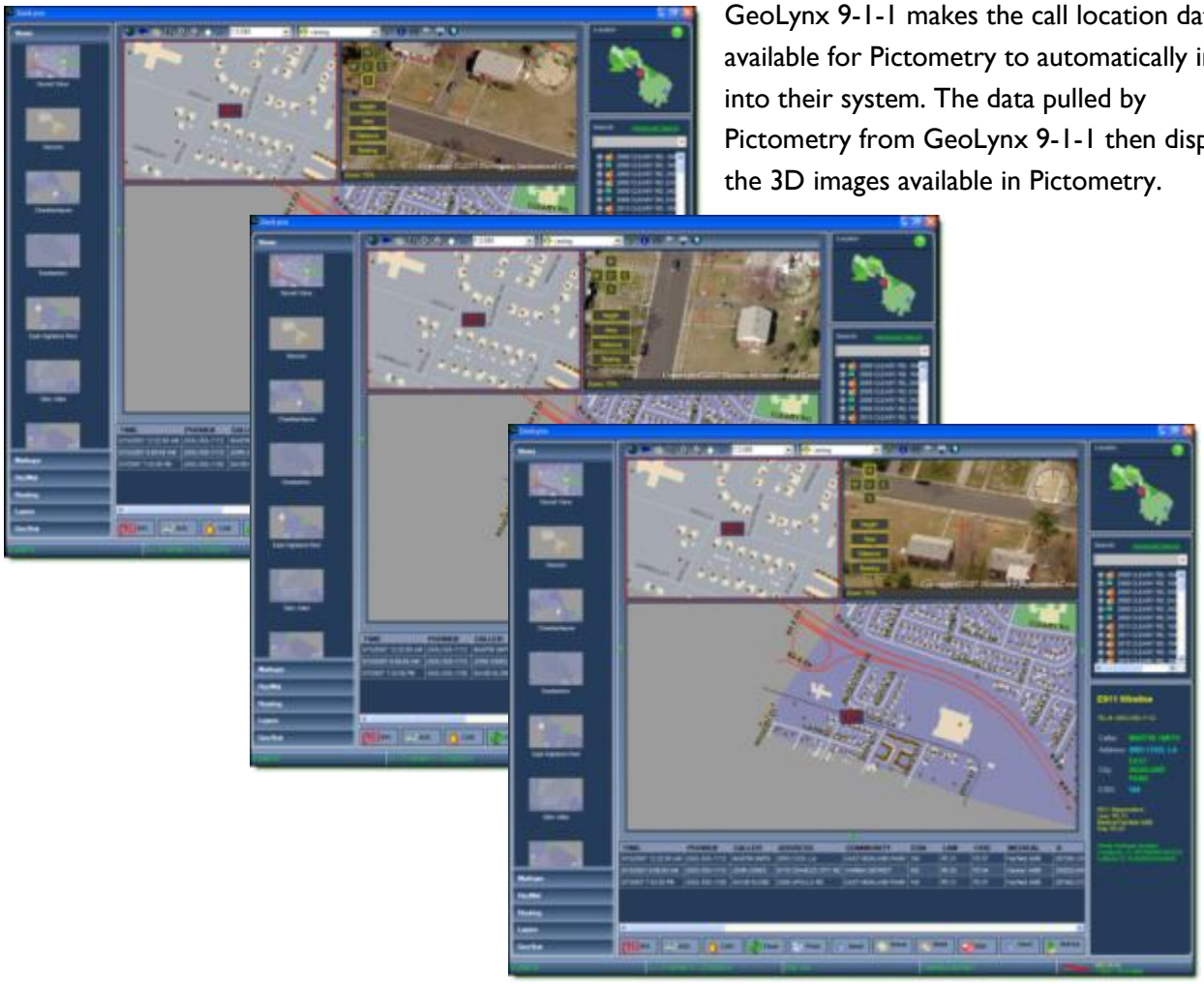


Search Route or Drive Time Polygon

Using the routing functionality, within GeoLynx 9-1-1, users can search map features along a route or within a drive time polygon. This is useful for emergency notifications. For example, a targeted notification can be sent out via telephone to all buildings inside a 30 minute drive time polygon from an incident location. Emergency notifications require the GeoLynx 9-1-1 ENS add-on module.

Pictometry Integration

Integration of Pictometry in GeoLynx 9-1-1 offers additional location display functionality. The ease-of-use in uniting these solutions allows telecommunicators and emergency responders to instantly know vital details of incidents in progress. With the Pictometry image integrated into a map view it is accessible by telecommunicators to measure heights of buildings, turn pictures, view locations of doors and windows, etc. for the most advantageous view of incident locations from the PSAP.



GeoLynx 9-1-1 makes the call location data available for Pictometry to automatically input into their system. The data pulled by Pictometry from GeoLynx 9-1-1 then displays the 3D images available in Pictometry.

HazMat Mapping

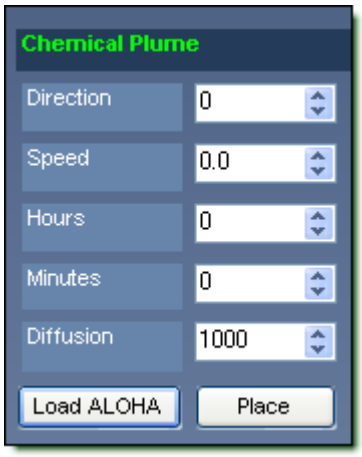
With GeoLynx 9-1-1, emergency responders can more effectively and quickly manage a hazardous materials (HAZMAT) incident.

The HazMat feature provides a means for displaying, in the map views, a geographic model (plume) of a chemical incident. Spatial selection of addresses provides flexibility in locating multiple locations for large scale emergency situations, such as chemical spills.

Chemical plume modeling allows users to create geographic models by:

- Manually entering variables related to the specific incident
- Loading Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files
- Utilizing the Emergency Response Guidebook (ERG) digitally embedded in GeoLynx 9-1-1

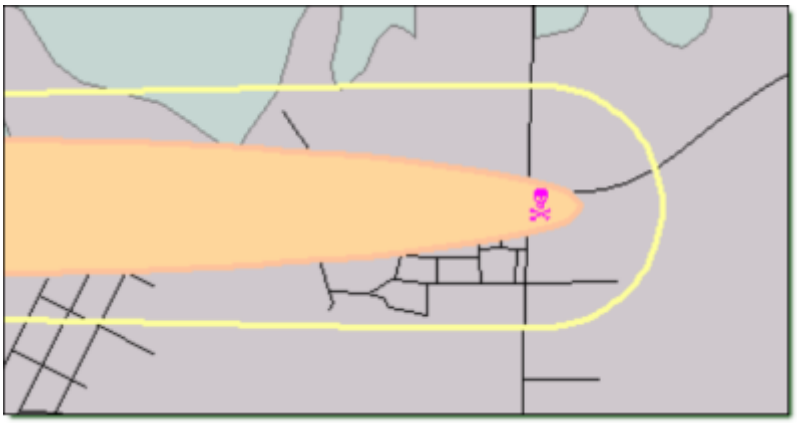
Manual Chemical Plume



A manual chemical plume can be created by simply entering information into the chemical plume tool. Information related to the specific incident such as wind direction, wind speed, elapsed time since the chemical incident, and the known diffusion rates for various types of chemical agents can be obtained from available resources such as the local weather station.

Once this information is entered and the map is selected at the location of the chemical spill the chemical plume modeler creates two zones reflecting areas of higher and lower concentration of hazardous chemicals:

- The initial isolation zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material.
- The protective action zone defines an area downwind from the incident in which persons may become incapacitated and unable to take protective action and/or incur serious health effects.



Aerial Locations of Hazardous Atmospheres (ALOHA)

GeoLynx 9-1-1 Chemical Plume modeler has the ability to accept Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files. ALOHA was developed by the Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention Office (CEPPO), and the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration. It was developed for individuals responding to chemical accidents to predict the rates of dispersion of specified chemicals based on climatic conditions and other variables involved in a chemical spill.

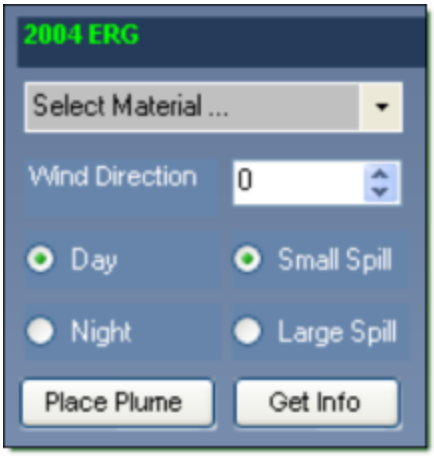
This program allows users to develop a footprint showing the concentration areas that pose a threat to human life. These footprints can be imported and displayed within GeoLynx 9-1-1.

Emergency Response Guidebook

GeoLynx 9-1-1 now has an additional tool for mapping hazardous materials: the Emergency Response Guidebook (ERG).

The ERG was developed jointly by the United States Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in:

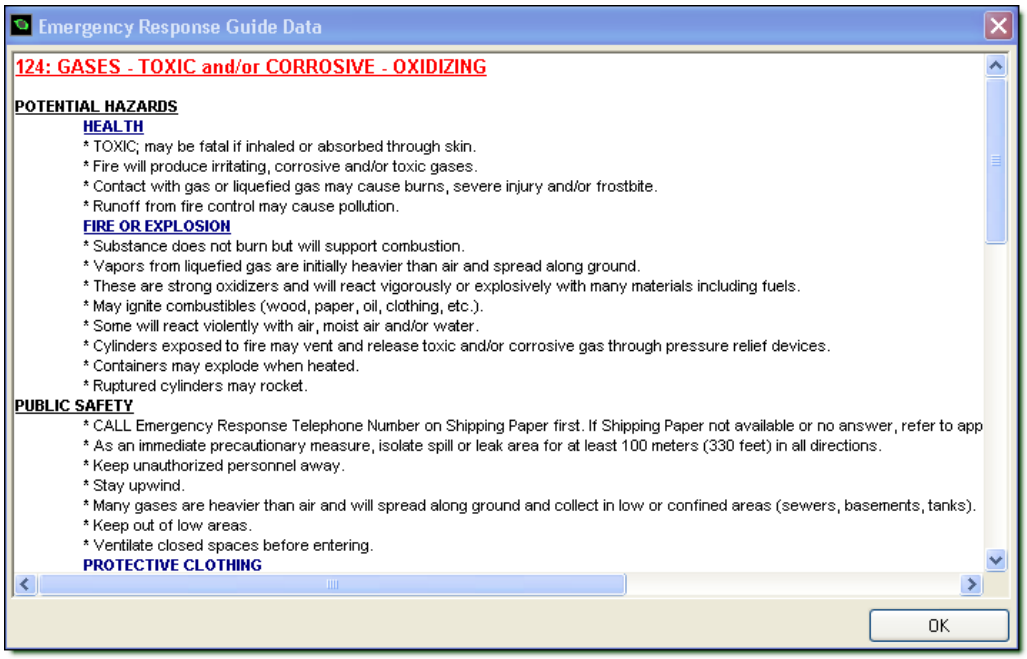
- quickly identifying the specific or generic classification of the material(s) involved in the incident, and
- protecting themselves and the general public during this initial response phase of the incident.



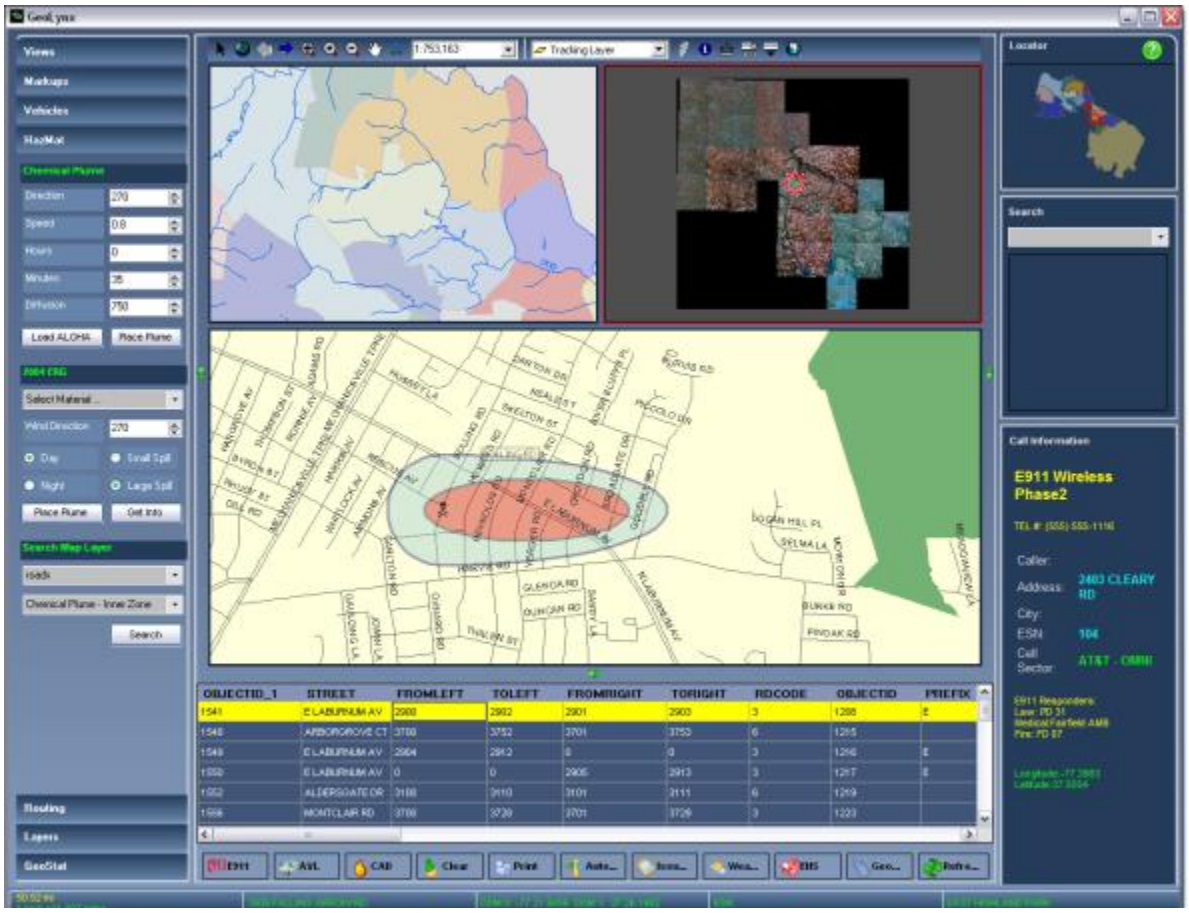
Where once a user had to manually use the paper book to look up a chemical or placard number and determine the response and isolation protocols, GeoLynx 9-1-1 now automates this. A user needs to only type part of a chemical name, and the search will auto complete as they type. They may also type in a placard number if it is known. GeoLynx 9-1-1 takes this one step further, and maps the isolation protocols so they can be visualized and used as selection polygons for GeoLynx 9-1-1 ENS, if configured, for making mass outbound notifications.

A table included in the ERG lists, by ID number, Toxic Inhalation Hazard (TIH) materials and provides two different types of recommended safe distances: initial isolation distances and protective action distances. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase with time.

When the hazardous material is selected a user can also view the details in the ERG data window. The data window displays the potential hazards, public safety, and emergency response information for the selected material.

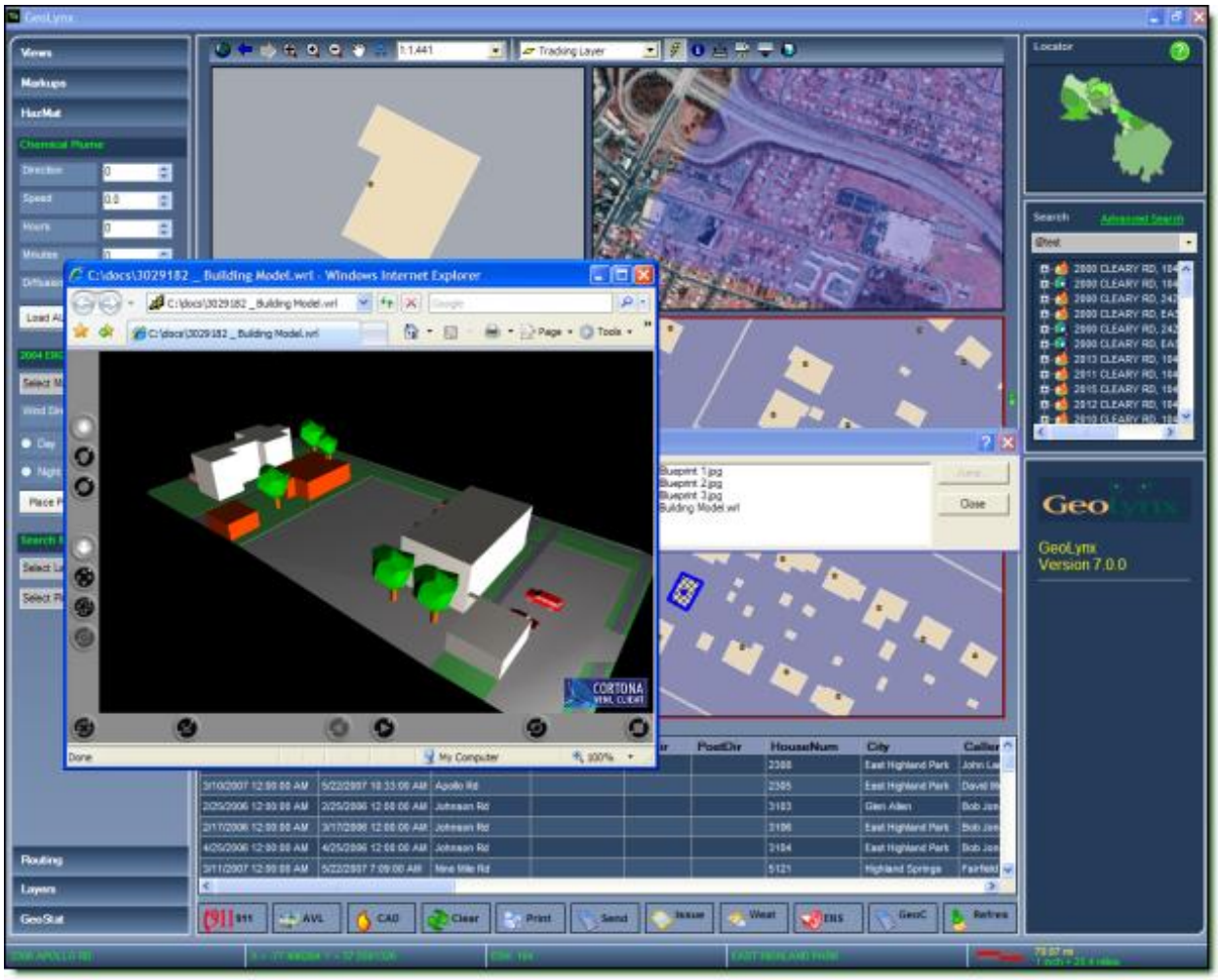


After creating the plume zones, a user can search for map features, such as streets or address points, within the plume. This information is stored in the results grid and can be printed, e-mailed, faxed, or saved.


Views
Markups
Vehicles
HazMat
Chemical Plume
Load ALOHA
Place Plume
Search Map Layer
Search
Routing
Layers
GeoStat
Locator
Search
Call Information
E911 Wireless Phase2
Caller:
Address:
2483 CLEARY RD
City:
ESN:
Cell Sector:
OBJECTID_1
STREET
FROMLEFT
TOLEFT
FROMRIGHT
TORIGHT
RDCODE
OBJECTID
PREFIX

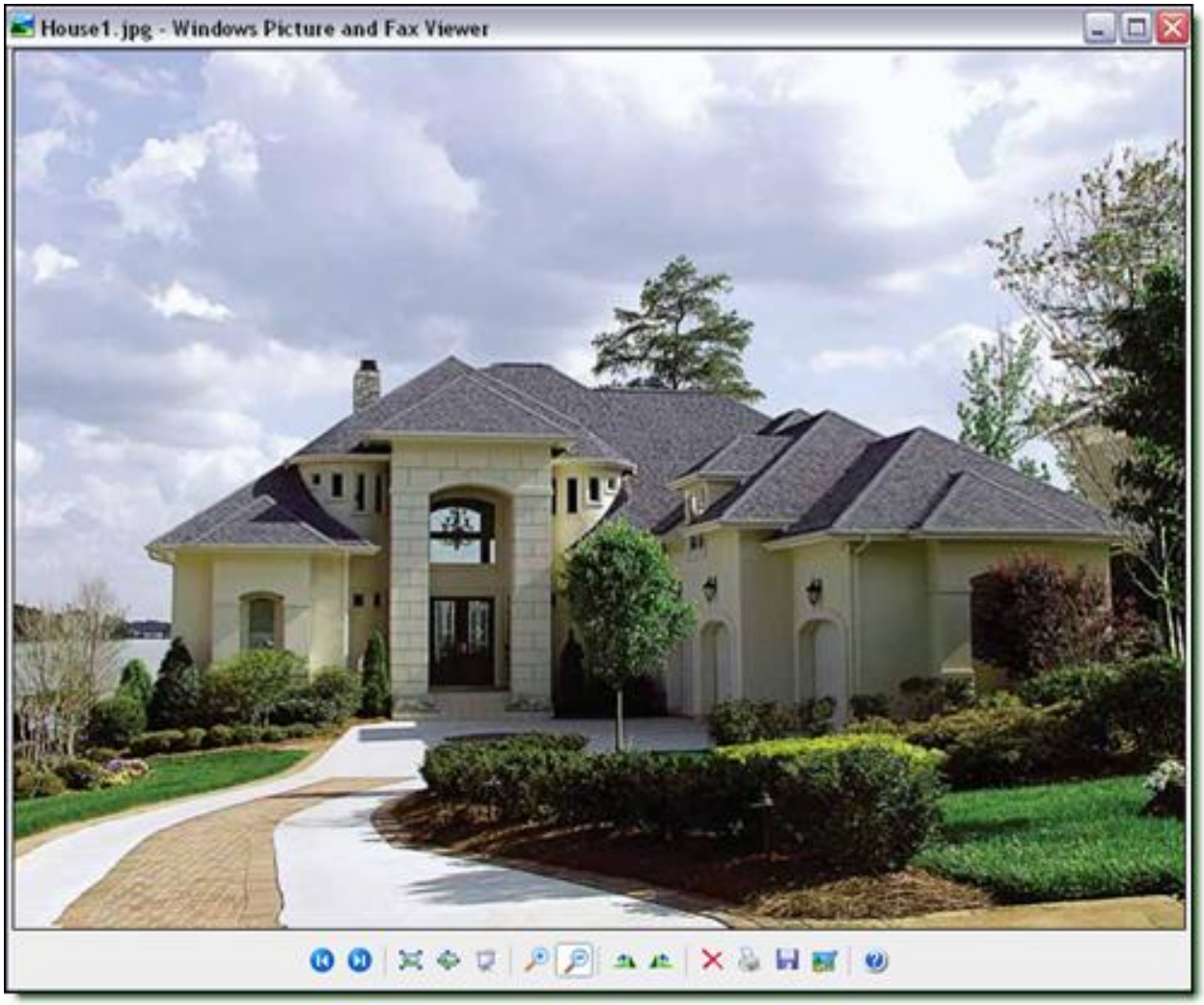
Hyperlinks

The hyperlink feature, using inherent ESRI technology in GeoLynx 9-1-1, allows a single image or multiple images to be associated with a geographic location. The database of images is queried automatically in response to the receipt of a 9-1-1 call or manual address look-up. In an emergency scenario in a location such as a school, golf course, stadium, or campus the hyperlink feature gives emergency response personnel fax access to images such as digital property images, blueprints, CAD drawings, text documents, PDF files, or models linked to a geographic location or address for a visual reference.



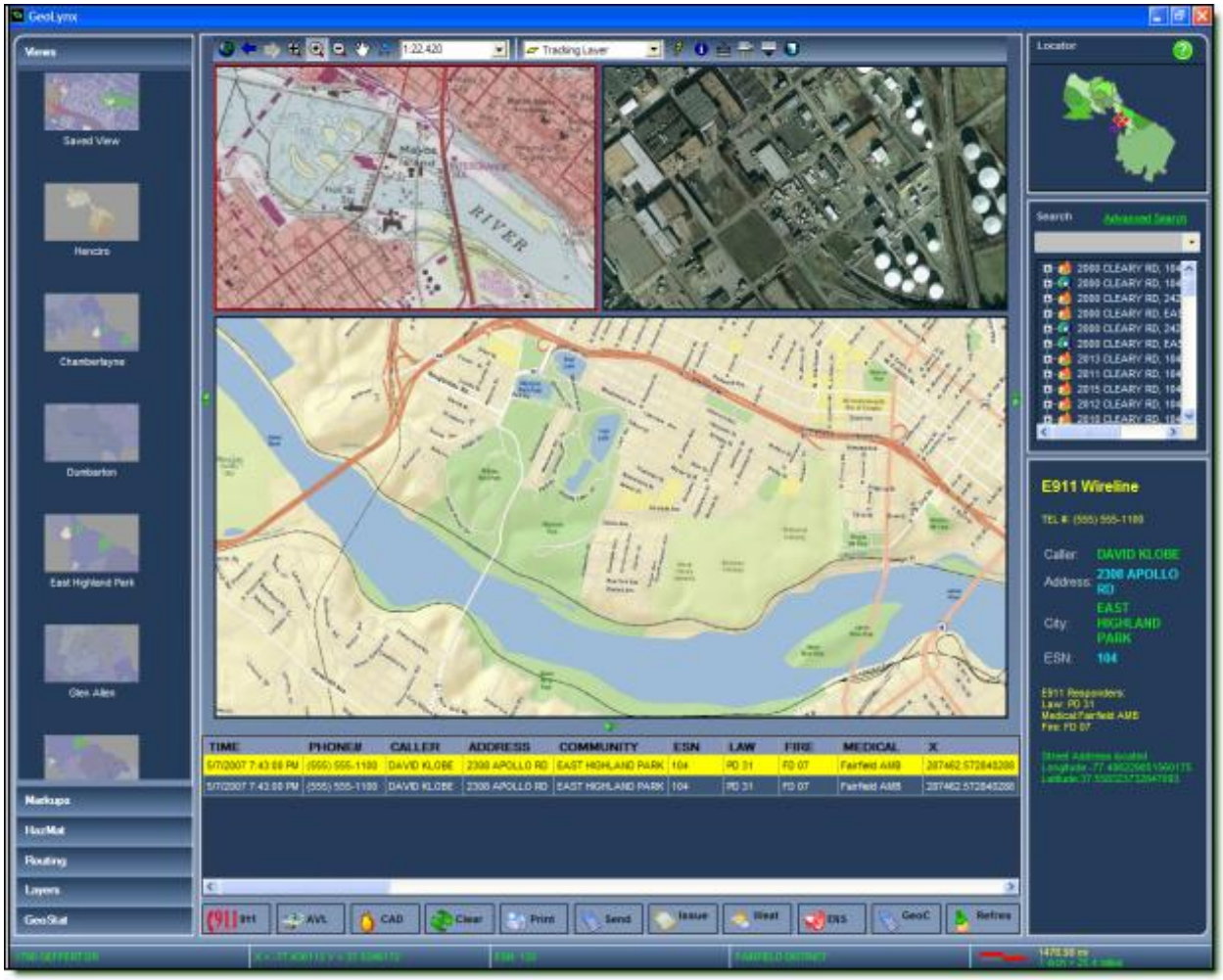
Hyperlinks can be any of following three types.

- A document – the file specified for that feature in the selected hyperlink field is launched using the application with which that file type is currently associated.
- The Web page (URL) specified for that feature in the selected hyperlink field is launched in the default Web browser.
- Macro - When a feature is clicked with the Hyperlinks tool, the value specified for that feature in the selected hyperlink field is sent to the macro specified.

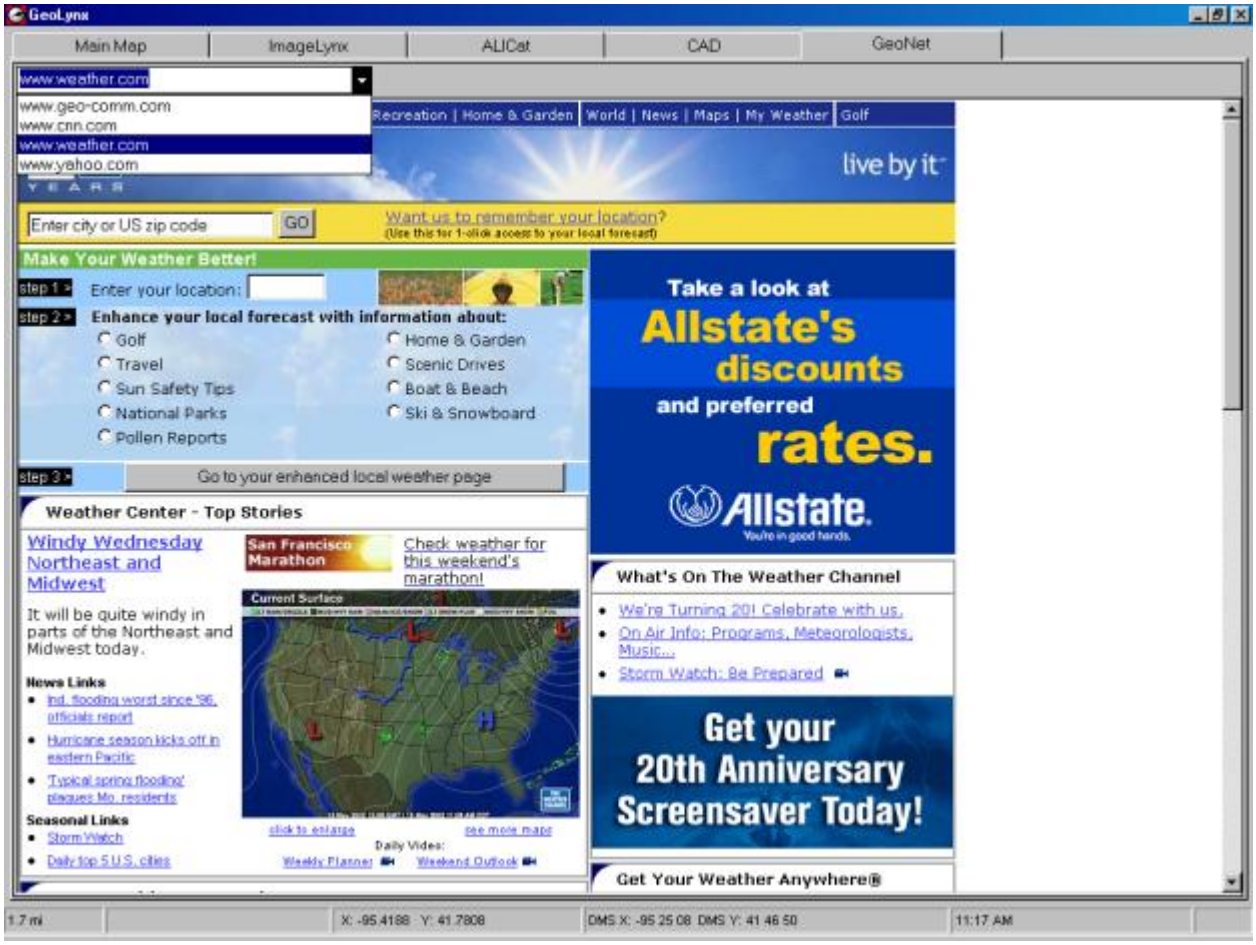


Web Map Services

GeoLynx 9-1-1 supports ArcIMS map services, ArcGIS Server map services, and Open GIS Consortium Web Map Services (OGC WMS). One example of these is ESRI's BETA product, ArcGIS Online, which is supported by GeoLynx 9-1-1. It adds nationwide coverage of aerial imagery (1 to 3 meter resolution), scanned USGS topographic maps for the entire US, and TeleAtlas street centerline data all at no charge for GeoComm ArcGIS engine users. This data is accessed from the Internet. In the example screen below, all data in GeoLynx 9-1-1 is being served from ArcGIS Online through the Internet.



There are many free and subscription based Web map services that GeoLynx 9-1-1 can consume directly. For example, the Geography Network is a global network of geographic information users and providers. It provides the infrastructure needed to support the sharing of geographic information among data providers, service providers, and users around the world. Through the Geography Network, GeoLynx 9-1-1 can access many types of live dynamic maps such as natural hazards like earthquakes, tsunamis, and volcanoes, and other types of hazards detected using the US Defense Meteorological Satellite including fires, floods, hurricanes, and cyclones. ESRI ArcWeb Services also provides fee Web-based map services that GeoLynx 9-1-1 can directly display, including weather data from providers such as Meteorlogix.



Restricted Internet Access

GeoLynx 9-1-1 has built in restricted internet access. The System Administrator can limit Website access to specific sites such as news sites, weather data or HTML pages stored on a local workstation or LAN.

GeoLynx 9-1-1 Essential Features

Essential features in GeoLynx 9-1-1 include:

- Map Views
- Map View Extent
- Map Layers
- Map Tips
- Tool Tips
- GeoLynx 9-1-1 Shortcut Menu
- Print, E-mail, Fax, and Save
- AutoSend
- Issues
- Configurable Login

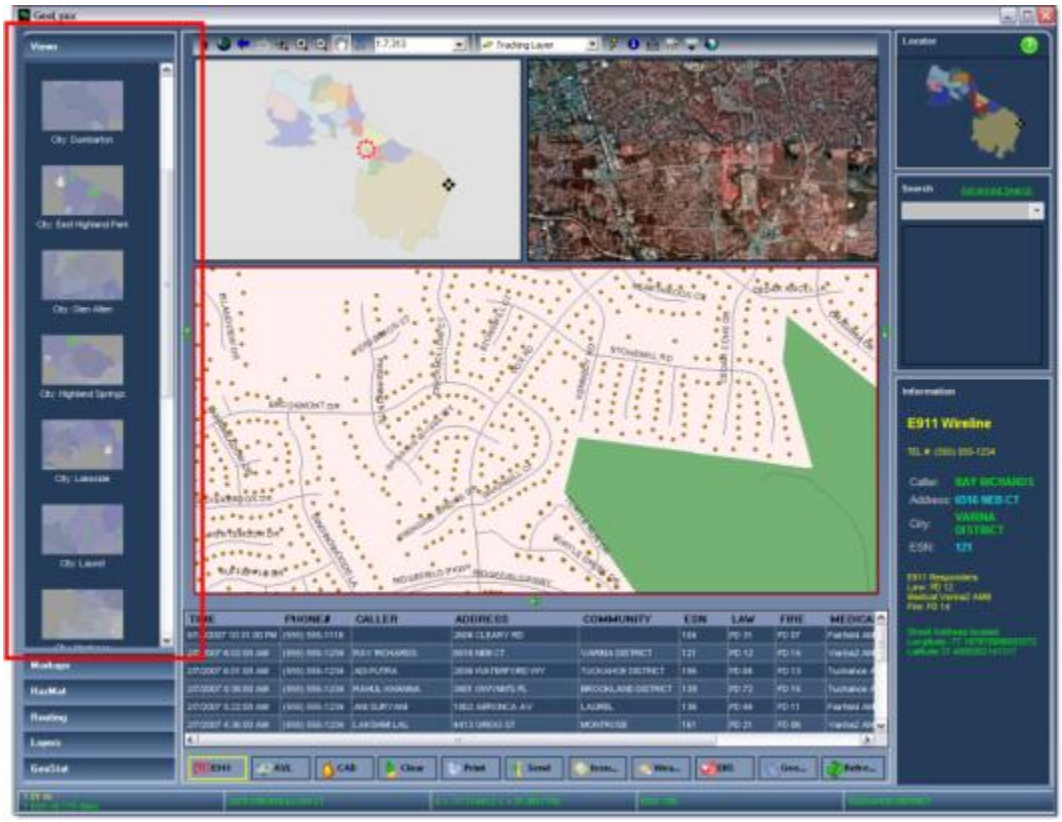
Map Views

GeoLynx 9-1-1 displays up to three map views within the main map window. Each map pane can display unique sets of map data layers and can assume different properties when displaying address locations.

For example, upon the receipt of a 9-1-1 call, one map pane can be configured to zoom to the extent of the city from which the 9-1-1 call was placed, while another map pane can be configured to zoom in closely on the call. Still another map pane can be configured to display an aerial image view of the location.

The views pane on the left side of the screen allows you to quickly navigate to pre-configured views, such as cities, townships, parks, and other public areas.

Each map view can be manipulated by the call-taker and then returned to the system administrator-set default. Additionally, the user can change the order of the views in the views pane, add new views, change views, and remove views.



When a map view is active, a user can perform functions such as zoom in, zoom out, or pan. Additionally, active map views can easily be resized or hidden simply by clicking and dragging the edge to the desired size.

Clone map view and re-center are additional tools used to customize the map view available with a right click of the mouse. At any time you can copy the view of the active map and display that same view in all other map views or re-center a map view by clicking anywhere within it.

Map View Extent

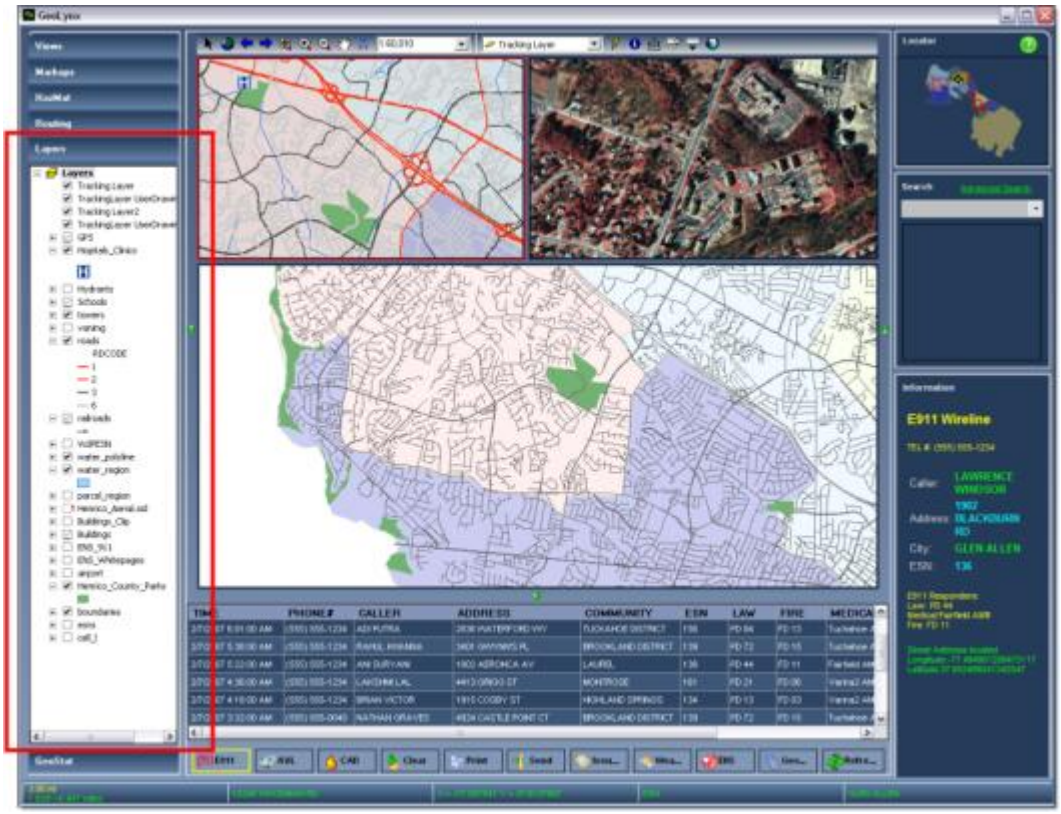
The full extent tool enables a user to automatically zoom to the extent of the entire map.

The previous map view tool offers an opportunity for users to effortlessly change their map view back to the original view after a recent change. Similar to the "back" button on Internet Explorer, GeoLynx 9-1-1 is capable of storing up to five recent views for any map displayed in the main screen of GeoLynx 9-1-1.

The go to next extent tool enables users to move forward one map view to a previously displayed map view.

Map Layers

The layers pane lists the layers that display in the map views and shows the symbols used to represent the features in each layer. This feature inherent in GeoLynx 9-1-1 allows users to view only the layers that they desire.

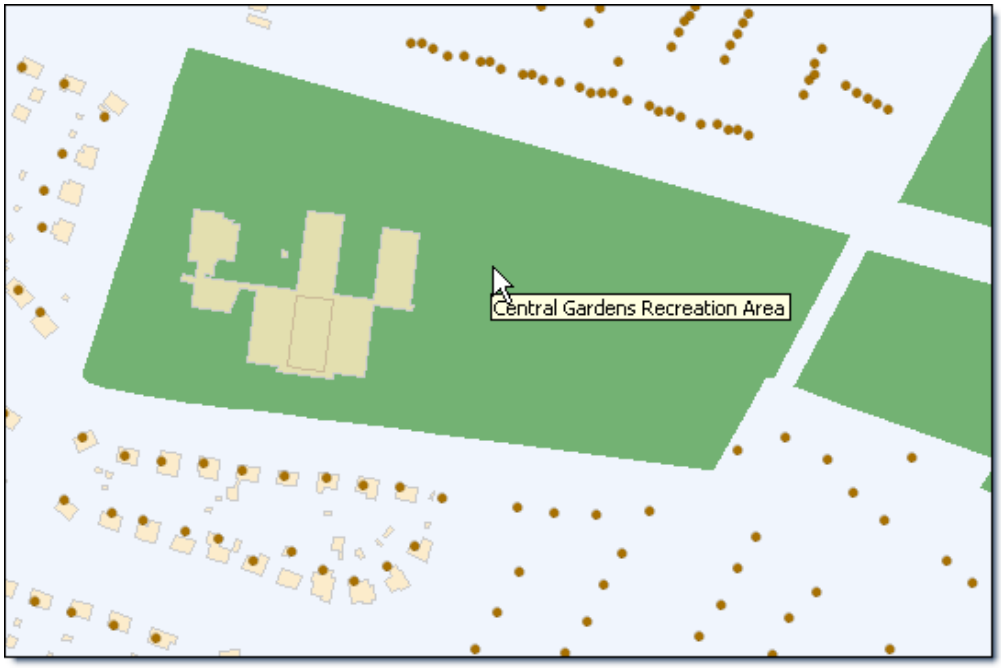


The layer list control drop-down menu is also available to easily select a layer to be active.

Map Tips

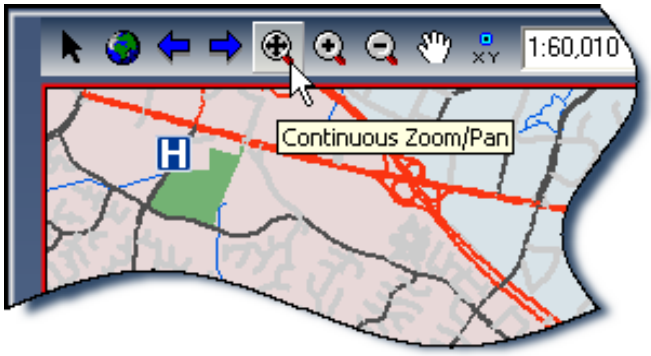
Map tips display selected information from the map data when the mouse pointer hovers over a map feature. The translucent background allows you to see the map behind the tip.

System administrators configure what information displays in the tip. The GeoLynx 9-1-1 map tip has the ability to pull information from multiple map layers and can have a text identifier in front of each row of information.

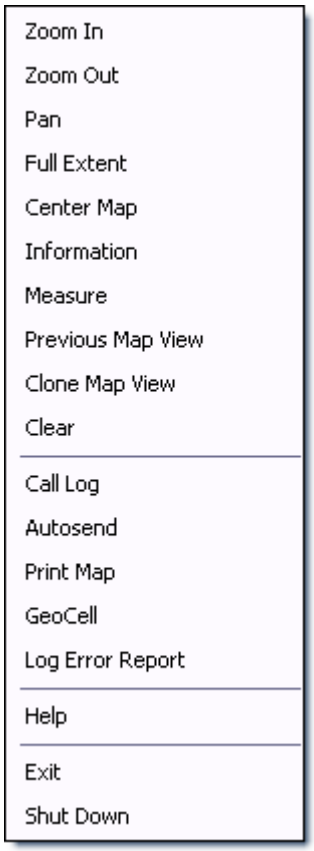


Tool Tips

A tool tip is a small text box that displays when your pointer hovers over a tool in the map tools toolbar. It displays the tool's name for quick and easy reference by GeoLynx 9-1-1 users.



GeoLynx 9-1-1 Shortcut Menu

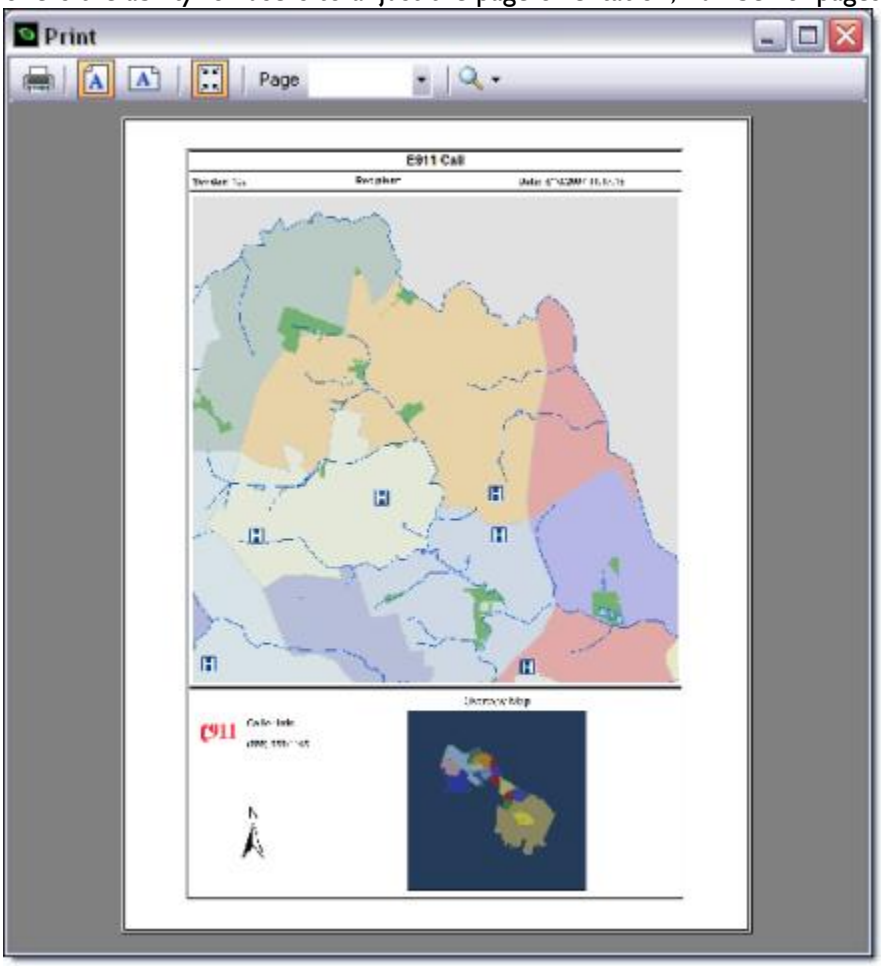


Right-click anywhere in a map view to display the GeoLynx 9-1-1 shortcut menu. This shortcut menu provides quick access to many of the most frequently used GeoLynx 9-1-1 features and functions.

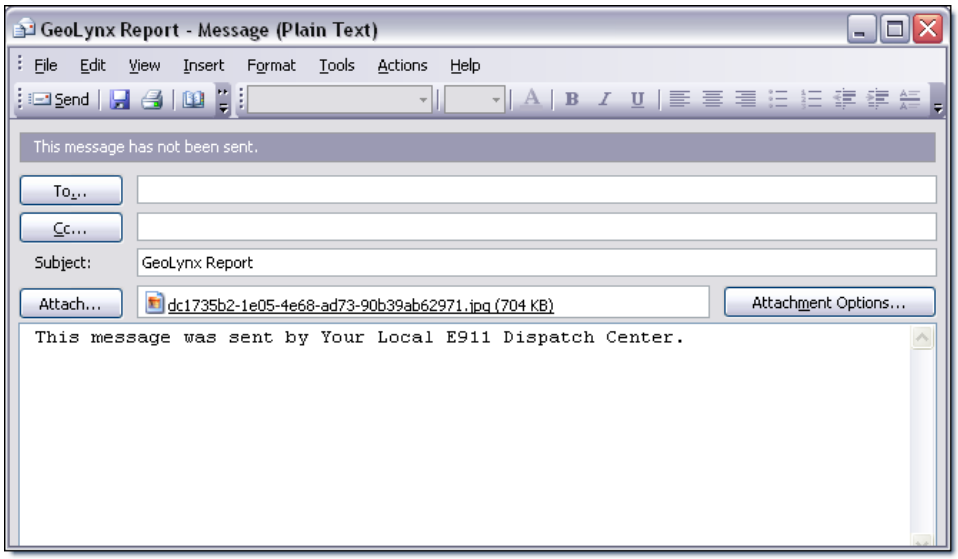
Print, E-mail, Fax, and Save

You can print the active map view to a local or network printer, e-mail the active map view, fax the active map view, or save the active map view as a .jpg image.

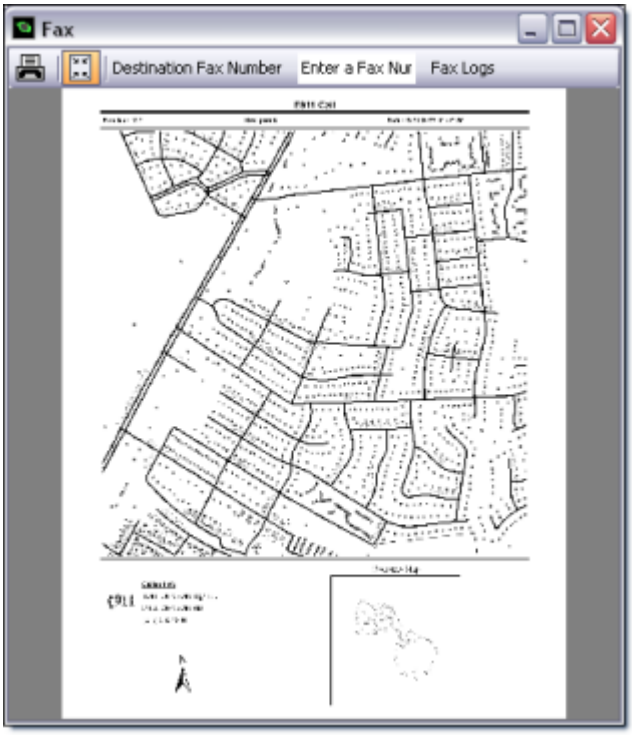
The print function offers the ability for users to adjust the page orientation, number of pages, and zoom level.



GeoLynx 9-1-1 has the ability to attach a map as a .jpg to an e-mail. This is especially useful if you and your GIS support are in different locations.



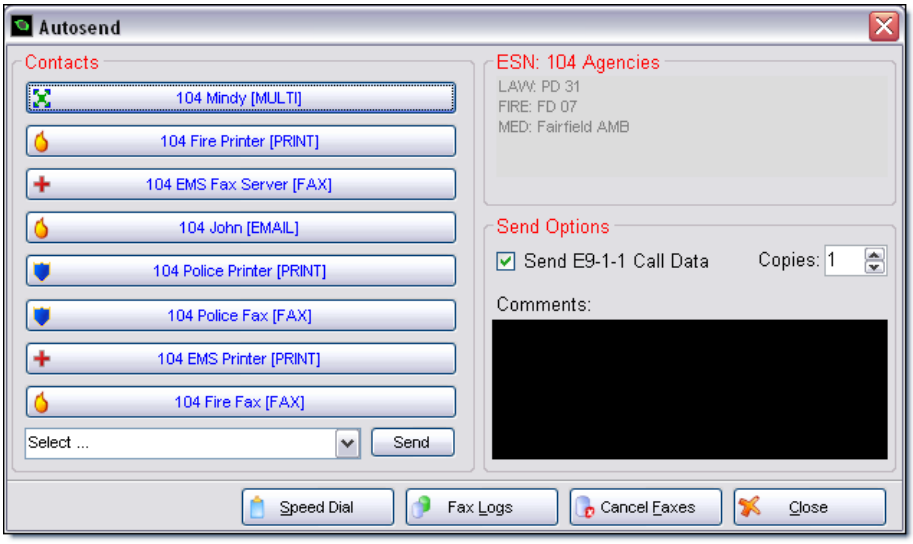
By simply clicking the fax button a map of or any other item displaying can be faxed.



Additionally, GeoLynx 9-1-1 has the ability to export a map as a .jpg file and save it to a location on the hard drive or external memory device such as a CD, DVD, or flash drive.

AutoSend

GeoLynx 9-1-1 offers the ability to automatically send a map view by fax, fax server, e-mail, or remote printer to previously designated numbers, addresses, or printers.

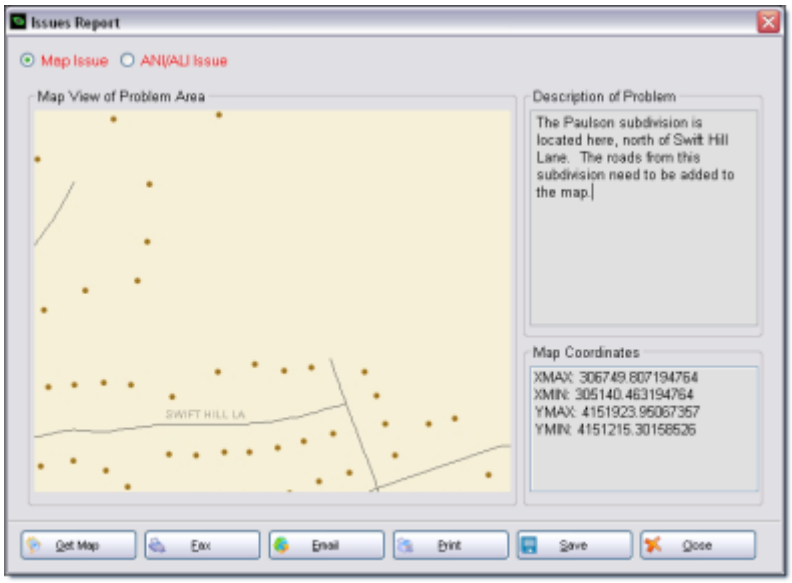


The system administrator can store up to eight fax numbers, e-mail addresses, or remote printers per ESN for law, fire, EMS, and other emergency responders. This allows you to automatically send a one-page copy of the current map view, locator map view, a north arrow, user-entered information, ALI data from the call, and sender identification information to the responding agency(ies).

In addition to emergency responders the system administrator can setup a destination list to include contacts such as animal control and power companies

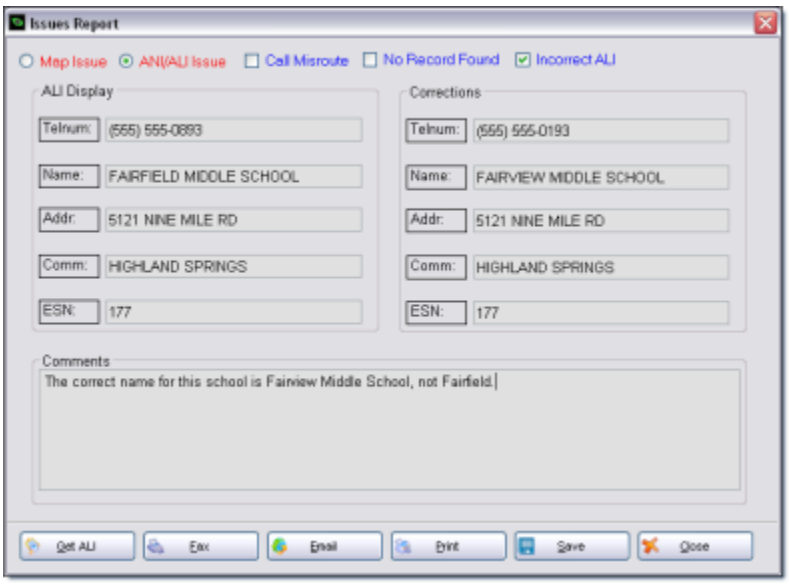
Issues

GeoLynx 9-1-1 contains an issues feature which allows users to log ANI/ALI and GIS issues in a report and either fax, e-mail, print, or save the report.



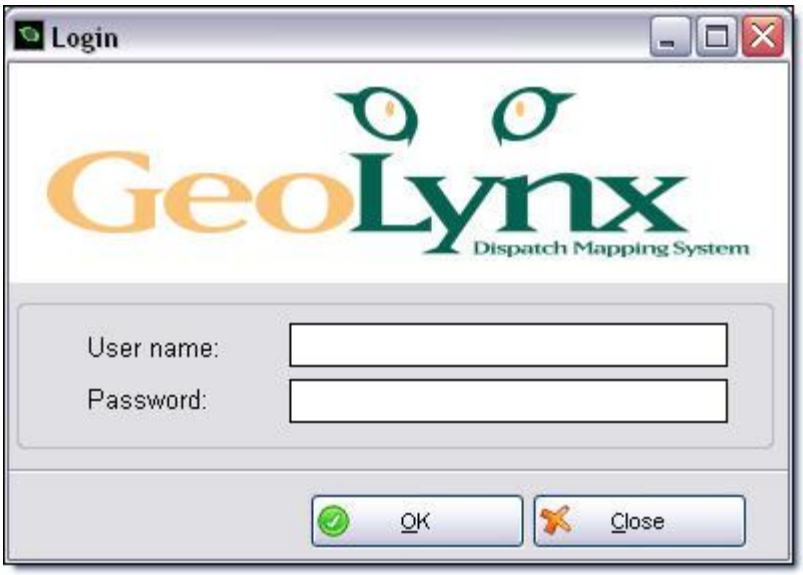
Using the map issues function users can display the current map view and map coordinates. By adding comments and additional information corrections to the GIS map data can be specified to send to the GIS personnel maintaining the data.

Using the ANI/ALI issues function users can display the current ALI information and then specify any corrections, along with a classification for the error type and any additional comments. ANI/ALI issues can be logged such as misrouted calls or calls with incorrect ALI.



Configurable Login

GeoLynx 9-1-1 has administrator, group, and individual user access levels. The system administrator can configure the different user rights, privileges, and preferences for each individual user or group of users and create passwords for user log on. The administrator is able to establish rights and privileges for a default group to bypass the need for individual or group user logon.



GeoLynx 9-1-1 Essential Tools

Tools in GeoLynx 9-1-1 include:

- Go to XY
- Flicker Layer
- Swipe Layer
- Transparency
- Zoom
- Pan
- Identify
- Measure
- Markups

Go to XY

The **Go to XY** tool allows the user to manually type longitude and latitude coordinates to find a longitude and latitude location on the map. It allows you to enter any format of units including: meters, decimal degrees, degrees minutes seconds, degrees decimal minutes, MGRS, and U.S. National Grid.

Entering the longitude and latitude coordinates maps emergency locations in the event a caller has a GPS coordinate, but no street address information in the E9-1-1 call's ALI (e.g. hunter in the middle of the woods, fisherman on a river, or a utility crew on an unknown street).

Flicker Layer

The **Flicker** Layer tool gives the user the ability to flash the layer selected from the layer list control.

This allows the user to reveal what is underneath a selected layer by flickering it on and off. This is particularly useful with aerial images and analysis where you want to see the difference between layers.

Swipe Layer

The **Swipe** Layer tool gives the user the ability to interactively reveal layers beneath the layer being swiped. This tool makes it easy to see what is underneath a particular layer without having to turn it off.

Transparency

The **Transparency** tool gives the user the ability to adjust the opacity of a layer. Adding transparency to the top layers in your map allows you to see them while still viewing underlying layers.

Boundaries layer at 90% transparency:

Boundaries layer at 25% transparency:

Zoom

The **Continuous Zoom/Pan** tool gives the user the ability to smoothly zoom in or out of the map window using cursor and mouse.

The **Zoom In** tool gives the user the ability to click drag or just click on the map to zoom in to display a desired area.

The **Zoom Out** tool gives the user the ability to click drag or just click on the map to zoom out to display a desired area.

Additionally users are able to set the map scale using the **Zoom Control**. By typing in a value or selecting a preset value from the list the map scale in the active map view will change automatically.

Pan

The **Pan** tool allows users to change the view of a map by dragging the map with the pointer.

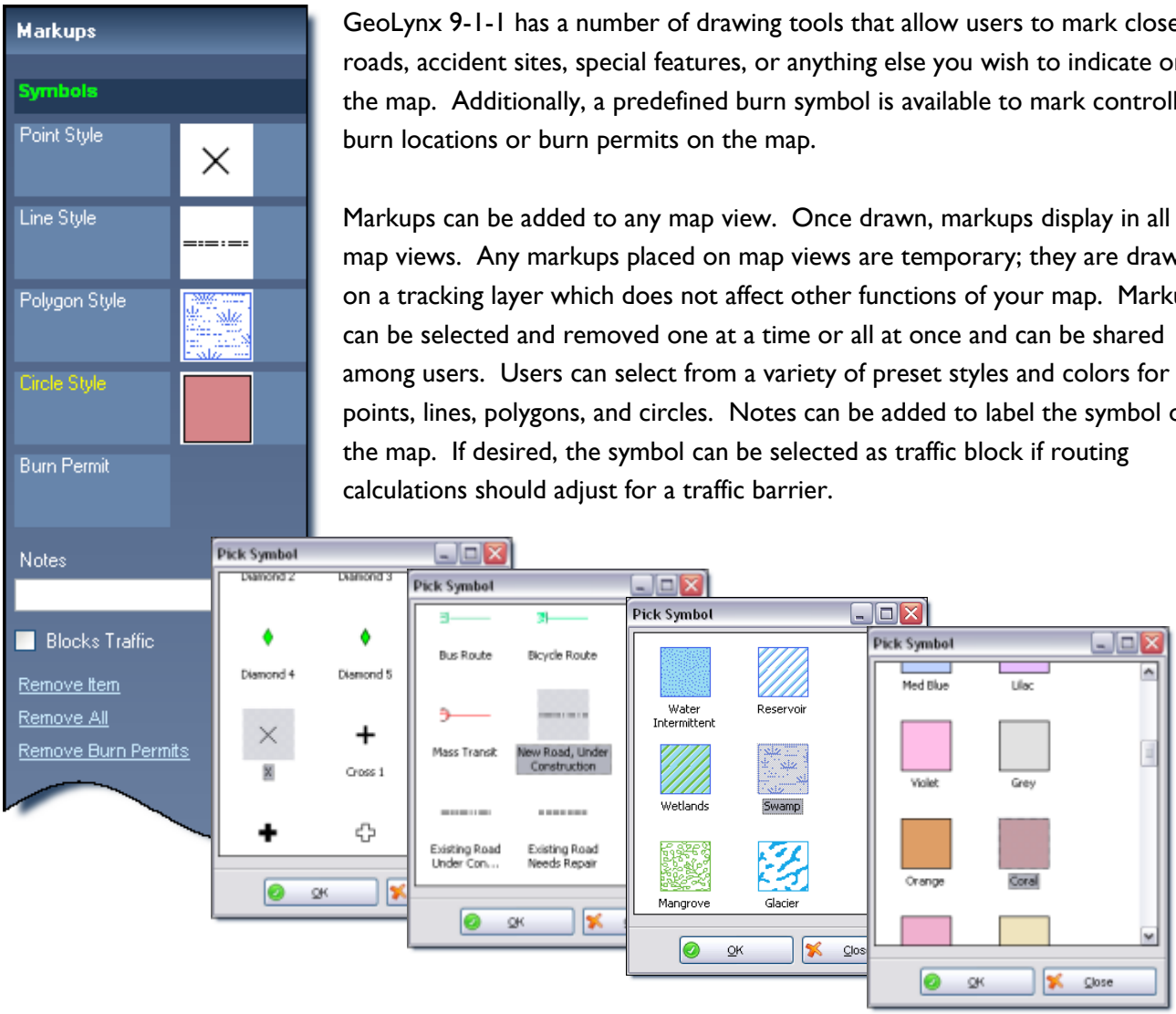
Identify

The **Identify** tool assists with identifying features on the map. It displays information from all map layers on the point clicked on the map. It can be used to identify unlabeled map features such as lakes, rivers, parks, etc. It can also be used to determine emergency responders for any point in question.

Measure

The **Measure** tool allows users to measure distances from point A to point B and to calculate cumulative distance from point to point to point and beyond. Distances can be displayed in multiple formats (e.g. feet, miles, and meters).

Markups



GeoLynx 9-1-1 has a number of drawing tools that allow users to mark closed roads, accident sites, special features, or anything else you wish to indicate on the map. Additionally, a predefined burn symbol is available to mark controlled burn locations or burn permits on the map.

Markups can be added to any map view. Once drawn, markups display in all map views. Any markups placed on map views are temporary; they are drawn on a tracking layer which does not affect other functions of your map. Markups can be selected and removed one at a time or all at once and can be shared among users. Users can select from a variety of preset styles and colors for points, lines, polygons, and circles. Notes can be added to label the symbol on the map. If desired, the symbol can be selected as traffic block if routing calculations should adjust for a traffic barrier.

GeoLynx 9-1-1 Optional Features

Optional features in GeoLynx 9-1-1 include:

- CAD Integration
- Multiple Position Setups

CAD Integration

GeoLynx 9-1-1 is designed with an open API which allows the CAD to interface directly to the dispatch mapping system enabling data integration between the two.

When CAD incidents enter the system they are assigned an incident number and an address. The operator can choose to pass the CAD-entered address to GeoLynx 9-1-1 to map the CAD event. The CAD incident address must match the mapped address to plot.

The system administrator determines how long a CAD event displays on the map, whether the CAD event displays and more. The CAD incidents update at intervals specified by the System Administrator. CAD incidents can display with unique icons based on incident type. The System Administrator determines incident icons. The operator determines how long a particular CAD-entered event displays on the map, whether the CAD event displays at other call taker positions, etc.

There are many options available with respect to how GeoComm treats the introduction of outside data into GeoLynx 9-1-1. What is described above is a simple rendition of how a CAD system could interface to the mapping application. It should be noted since GeoLynx 9-1-1 obtains the ANI/ALI spill from the 9-1-1 equipment; the call can still be plotted even if the CAD system crashes.

If the customer's CAD system allows users to manually record the location and status of a unit, GeoLynx 9-1-1 can be configured to display the CAD provided information. The system can be configured to display different symbols and color based on responder type and status.

CAD Icon Stacking

GeoLynx 9-1-1 and GeoComm's in-vehicle mapping software, GeoLynx Mobile, stack CAD incident symbols on the map increasing the readability of the map. This makes it easier to identify individual incident information by grouping incidents that are close together and then separating them when the user zooms in on the area.

Multiple incident numbers will be listed together at certain zoom levels. When multiple numbers are combined, they are represented by a red square symbol. If the Zoom In tool is used on the area containing multiple incidents, the incident numbers and symbols will be divided giving the user needed information for each incident.

Clear All CAD Incidents

Users may want to clear all CAD incidents from the map when the CAD system neglected to automatically clear incidents or if the CAD interface from the CAD vendor was not running at the time a "remove incident" command was sent.

This feature can be configured by the System Administrator and may not be available in all system setups.

Multiple Position Systems

For systems with multiple answering positions, GeoLynx 9-1-1 can be configured to display calls differently at answering positions and non-answering positions.

Answering Position

When a call is answered, GeoLynx 9-1-1 will:

- Map the call location with an arrow or other designated icon (this symbol is configurable by the system administrator)
- Automatically zoom all map views to the call's location
- Populate the information panels with the ALI

Non-Answering Position

When a call is answered at another workstation, your workstation will:

- Map call locations taken at other workstations with a blue cross (this symbol is configurable by the system administrator)
- Remain at your current map view
- Display your current call's information in the information panels, not information from calls taken at another workstation

GeoLynx AVL

AUTOMATIC VEHICLE LOCATION EXTENSION

GeoLynx AVL enables vehicle tracking functionality in GeoLynx 9-1-1. As an add-on module, GeoLynx AVL uses GPS technology to display incidents and equipped responding vehicles in "real-time" on your existing GeoLynx 9-1-1 map. This way, all information needed to dispatch the responder closest to an incident along the shortest route is at your fingertips.

While operating, GeoLynx AVL records the locations, routes, stops, duration of activity, and status of all emergency response vehicles. This allows for after-the-fact reconstruction of a unit's activity, movement, and routes for a defined period.

Benefits and Features

- Visually displays all equipped emergency response vehicles
- Emergency response vehicle tracking and incident locations are on the same graphic display
- Shortest route calculation from the most recent actual position of the dispatched unit
- Increased dispatching efficiency
- Vehicle route reconstruction
- Improved safety because vehicle location is noted at all times
- Improved response times
- Vehicles are displayed on the map as unique icons for ease of identification
- Provides dispatcher with automatic "real-time" vehicle tracking, and the dispatcher controls refresh rates allowing for maximum flexibility for any situation
- Dispatchers can steer emergency responders to an address location
- Vehicle status reporting indicates conditions in the vehicle at the time a position update is sent (i.e. pursuit mode, emergency mode, etc.)
- Allows text messaging between dispatcher and vehicle's mobile data terminal in times of radio silence
- AVL log playback provides after-the-fact replay or route reenactments for crime analysis and also provides paper report generation
- CAD interface provides CAD access to AVL data as it is occurring and allows for maximum support personnel efficiency
- Specifically developed for use in your 9-1-1 environment
- Simple, yet complete, training allows users easy acclimation to the software
- Strong software development team continuously improving the product to keep pace with mission-critical environments
- Life-saving information is increased, visible, and easily accessible with GeoLynx AVL added onto GeoLynx 9-1-1

Specific Functionality

Vehicles display as unique icons on the GeoLynx 9-1-1/ AVL map. Icons can be vehicle pictures chosen from a set of stock symbols or any font symbol installed on your computer. AVL functions are accessed from the AVL Controls dialog box.

Vehicle Selector	Lists vehicles installed in the AVL network
Icons	Allows setup of vehicle icons for different vehicle status types
Vehicle	Displays the current vehicle chosen from the Vehicle Selector
Commands	Displays vehicle tracking control options
Clear Map Button	Removes all vehicles from the map
AVL Data Log Button	Opens the AVL Log Playback dialog box
Mobile Data Button	Opens the Transmit Message dialog box
Exit Button	Closes the AVL Control panel and returns to the map

Vehicle icons are easily changed by the system administrator. The administrator simply selects a vehicle from the vehicle selector list and assigns an icon.

The tracked vehicles are then capable of reporting back to their location and status at the time a location update is delivered. Statuses vary per your specifications and typically are:

Status 1: Normal Mode

Status 2: Emergency Mode: emergency lights on

Status 3: Poll Mode: vehicle location queried

Status 4: Undefined

You are able to send vehicle commands to the icons. This way you can maintain the current status of all tracked vehicles. These statuses include pursuit mode, emergency mode, and normal mode. You can also find the current position of any tracked vehicle and can hide any vehicle icons.

The available commands are:

Mode	Description
	Puts a vehicle into a rapid update mode (typically every 7 to 10 seconds)
	Cuts a vehicle's normal update mode in half (one minute becomes 30 seconds)
	Returns a vehicle to its normal update mode

Mode	Description
Find Current Position	Asks a vehicle to report its location without waiting for its set update to come up
Hide Vehicle	Hides a vehicle from the map until the vehicle reports another position update

You may select any vehicle to follow on the map. When you follow a specific vehicle, such as one in a chase, the map will continuously center on the selected vehicle's position until the option is disabled.

The AVL Data Log is a useful tool for planning, analysis, and litigation. All vehicle tracking data is recorded in a log for after-the-fact replay.

GeoLynx AVL reads the AVL log sequentially one database per second. This is the fastest playback rate in the industry. For a slower playback, a user can adjust the pause between database records to be between 1-20 seconds.

In addition to the on-screen AVL Log playback, a paper report can be generated.

GeoLynx AVL allows the transmission of text messages between the dispatch center and AVL units. Senders and receivers of these messages must be equipped with a connection via a wireless network for this to function.

GeoLynx® MOBILE

MOBILE RESPONSE GIS

Providing the maximum amount of information to those who need it most…the ***GeoLynx Mobile*** mobile response GIS system provides a mapping tool to emergency responders. GeoLynx Mobile is perfectly suited for your mobile environment with screen tinting options for varying lighting environments to match your personal preference. GeoLynx Mobile is a mobile version of GeoLynx 9-1-1 mapping software designed for in-the-field mapping.

Benefits and Features

- Supports ESRI file, personal, and enterprise geodatabase
- Built on the Microsoft .NET framework
- Built on ESRI ArcGIS technology
- Shares same programming code base as

GeoLynx 9-1-1

- Streamlined user interface with buttons and controls optimized for touch screen, new overview map, new search box on main screen to find streets, addresses, intersections, common places.
- Suited for a mobile environment with easy to view display, large buttons for touch screen and screen tinting options for day/night lighting
- Displays turn-by-turn driving directions
- Routes around barriers
- "Get Directions" between any two locations
- Built in Emergency Response Guide (ERG) with HazMat isolation protocols
- Provides a common operating picture (COP) where users share markups and plume models between all GeoLynx Mobile and GeoLynx 9-1-1 licenses
- Hyperlinks to additional information such as digital imagery, Web cameras, or blueprints
- Configurable hotkeys
- Ability to view Pictometry, if available

Supported Formats

GeoLynx Mobile is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI file geodatabase
- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefile

In addition, services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx Mobile.

System Architecture

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations.

Because GeoComm is an ESRI business partner, we are able to provide the latest version of GeoLynx Mobile mobile response GIS. GeoLynx Mobile uses ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to responder vehicles.

GeoComm recognizes the need for the most current technology to be implemented to ensure the software is maintained and supported for years to come. Our proposed ArcGIS framework is the most current and future technology platform from ESRI.

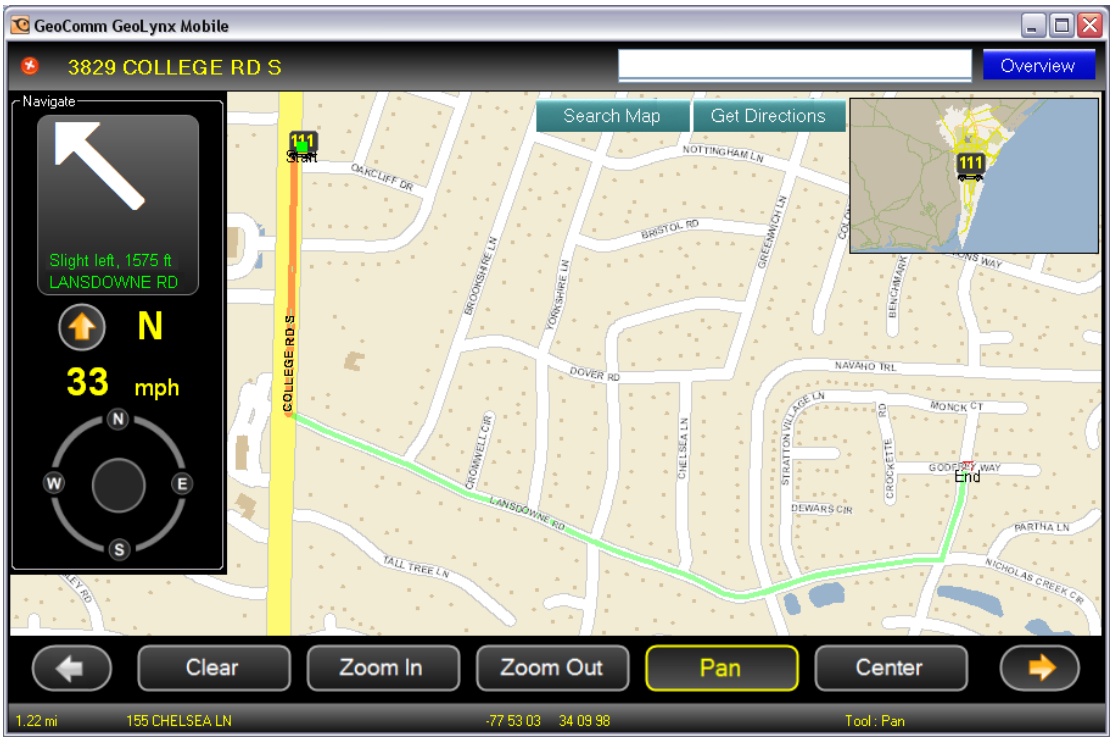
GeoLynx Mobile is also built on the Microsoft .NET framework. This is Microsoft's current and future platform and it is ensured to work with the new Microsoft technology, such as Windows Vista.

Additionally, advanced, scalable Database Management System (DBMS) technology is used in the GeoLynx Family of Products for storing data and configuration settings. Benefits of using SQL server include significantly increased performance capacity for both AVL and CAD. For example, for AVL, Microsoft SQL server allows 100, 1,000, and more units to be moved on the map in a single transaction unlike other DBMS technology which move units individually on a map during a transaction. This same efficiency extends to CAD calls for service.

User Interface

User Interface (UI) Appearance

The UI is simplified but strongly engineered to include much of the functionality right on the main screen. The UI resembles some common consumer grade in-vehicle navigation applications but is focused for public safety use.



Unser Interface (UI) Form Factor

Screen display resolutions are typically smaller in mobile data computers and vehicular PCs than for GeoLynx 9-1-1 workstations. The UI is designed for a minimum resolution of 800 x 480, the typical resolution for Ultra Mobile PC (UMPC), a new class of computing devices that are emerging – handheld computers that run full blown Microsoft Windows.

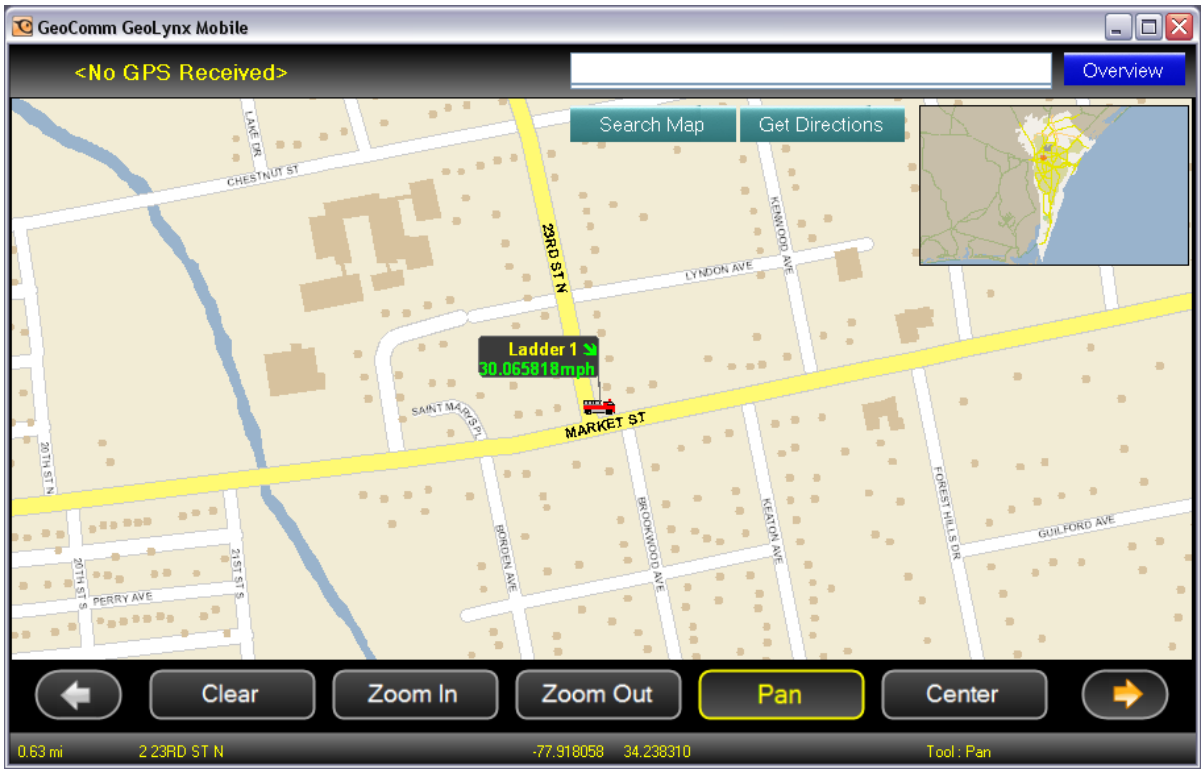
Optimized for Mobile Environment

Developed for Touch Screen

Touch screen buttons scroll along the bottom of the user interface to provide quick access to typical mapping functionality and more advanced uses such as the Emergency Response Guide (ERG).

When functions are activated a display box pops up along the left side of the user interface.

In addition, the overview map in the top right corner can be easily turned on or off.



Turn By Turn Driving Directions

When a route is computed or the user enters a destination, GeoLynx Mobile displays turn-by-turn driving directions which are typical of consumer grade in vehicle navigation applications. For example, as you are driving, GeoLynx Mobile will show that a left turn is coming up in 174 feet.

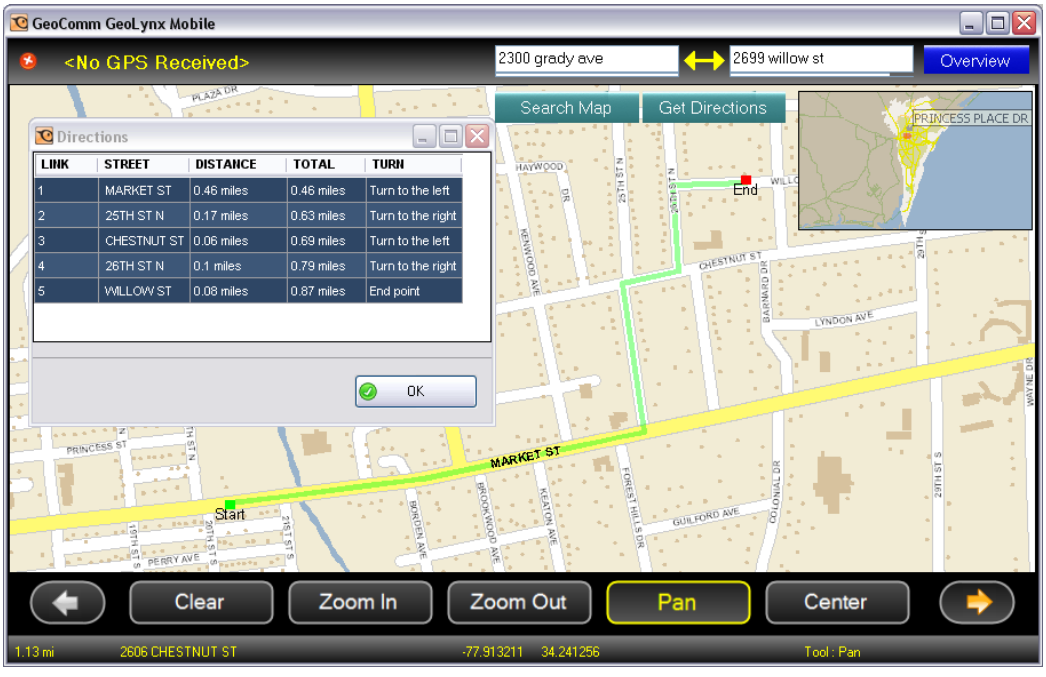
GeoLynx Mobile automatically computes routes including routing around barriers.

Get Directions

GeoLynx Mobile allows you to "Get Directions" similar to online map services such as Google maps.

HazMat Mapping

With GeoLynx Mobile, emergency responders can more effectively and quickly manage a hazardous materials (HazMat) incident.



The HazMat feature provides a means for displaying, in the map views, a geographic model (plume) of a chemical incident. Spatial selection of addresses provides flexibility in locating multiple locations for large scale emergency situations, such as chemical spills.

Chemical plume modeling allows users to create geographic models by:

- Manually entering variables related to the specific incident
- Loading Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files
- Utilizing the ERG digitally embedded in GeoLynx Mobile

Manual Chemical Plume

A manual chemical plume can be created by simply entering information into the chemical plume tool. Information related to the specific incident such as wind direction, wind speed, elapsed time since the chemical incident, and the known diffusion rates for various types of chemical agents can be obtained from available resources such as the local weather station.

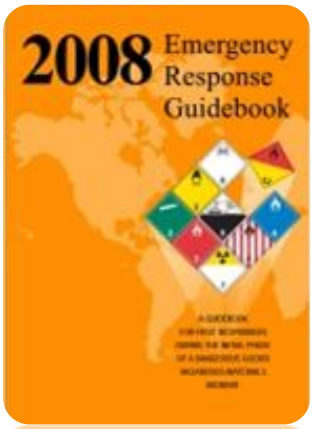
Once this information is entered and the map is selected at the location of the chemical spill the chemical plume modeler creates two zones reflecting areas of higher and lower concentration of hazardous chemicals:

- The initial isolation zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material.
- The protective action zone defines an area downwind from the incident in which persons may become incapacitated and unable to take protective action and/or incur serious health effects.

Aerial Locations of Hazardous Atmospheres (ALOHA)

GeoLynx Mobile Chemical Plume modeler has the ability to accept Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files. ALOHA was developed by the Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention Office (CEPPO), and the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration. It was developed for individuals responding to chemical accidents to predict the rates of dispersion of specified chemicals based on climatic conditions and other variables involved in a chemical spill.

This program allows users to develop a footprint showing the concentration areas that pose a threat to human life. These footprints can be imported and displayed within GeoLynx 9-1-1.



Emergency Response Guidebook

GeoLynx Mobile now has an additional tool for mapping hazardous materials, the ERG.

The ERG was developed jointly by the United States Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the

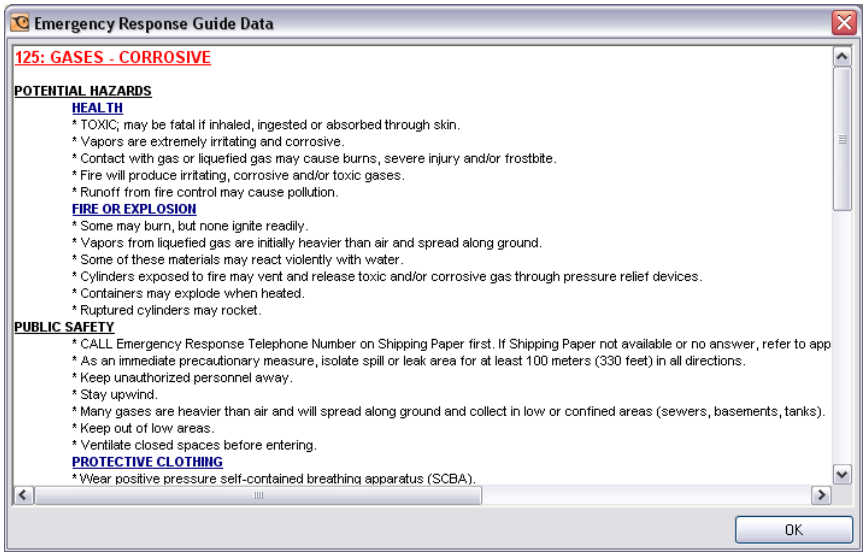
scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in:

- Quickly identifying the specific or generic classification of the material(s) involved in the incident, and
- Protecting themselves and the general public during this initial response phase of the incident.

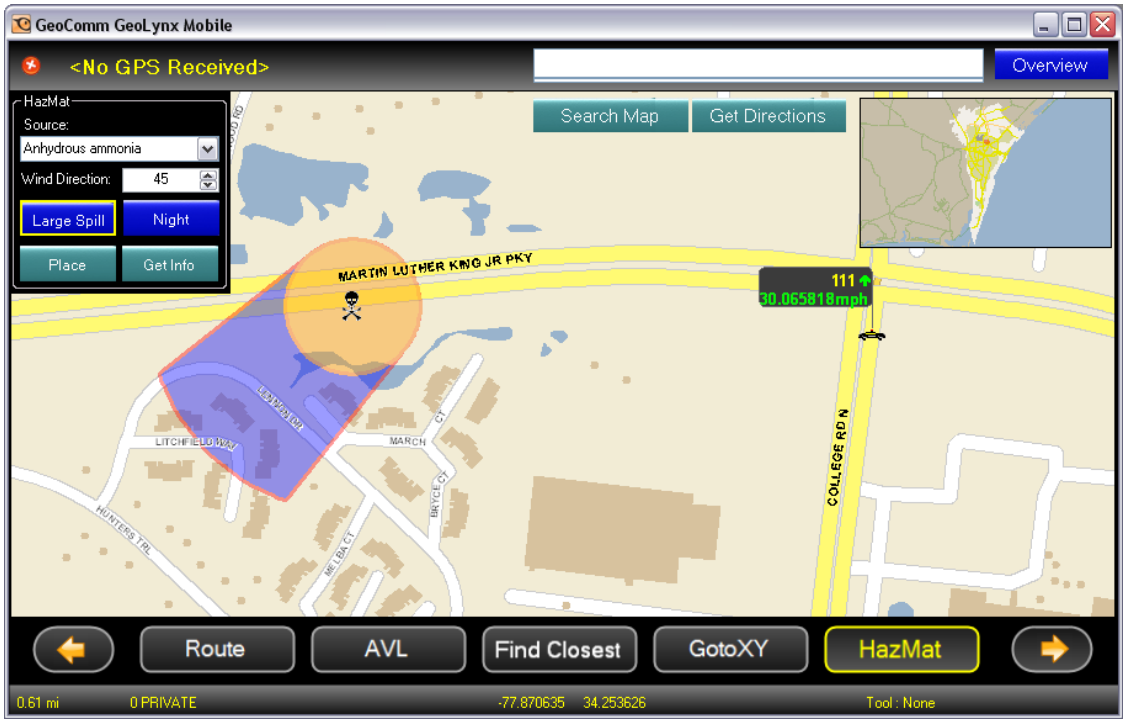
Where once a user had to manually use the paper book to look up a chemical or placard number and determine the response and isolation protocols, GeoLynx Mobile now automates this. A user needs to only type part of a chemical name, and the search will auto complete as they type. They may also type in a placard number if it is known.

A table included in the ERG lists, by ID number, Toxic Inhalation Hazard (TIH) materials and provides two different types of recommended safe distances: initial isolation distances and protective action distances. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase with time.

When the hazardous material is selected a user can also view the details in the ERG data window. The data window displays the potential hazards, public safety, and emergency response information for the selected material.

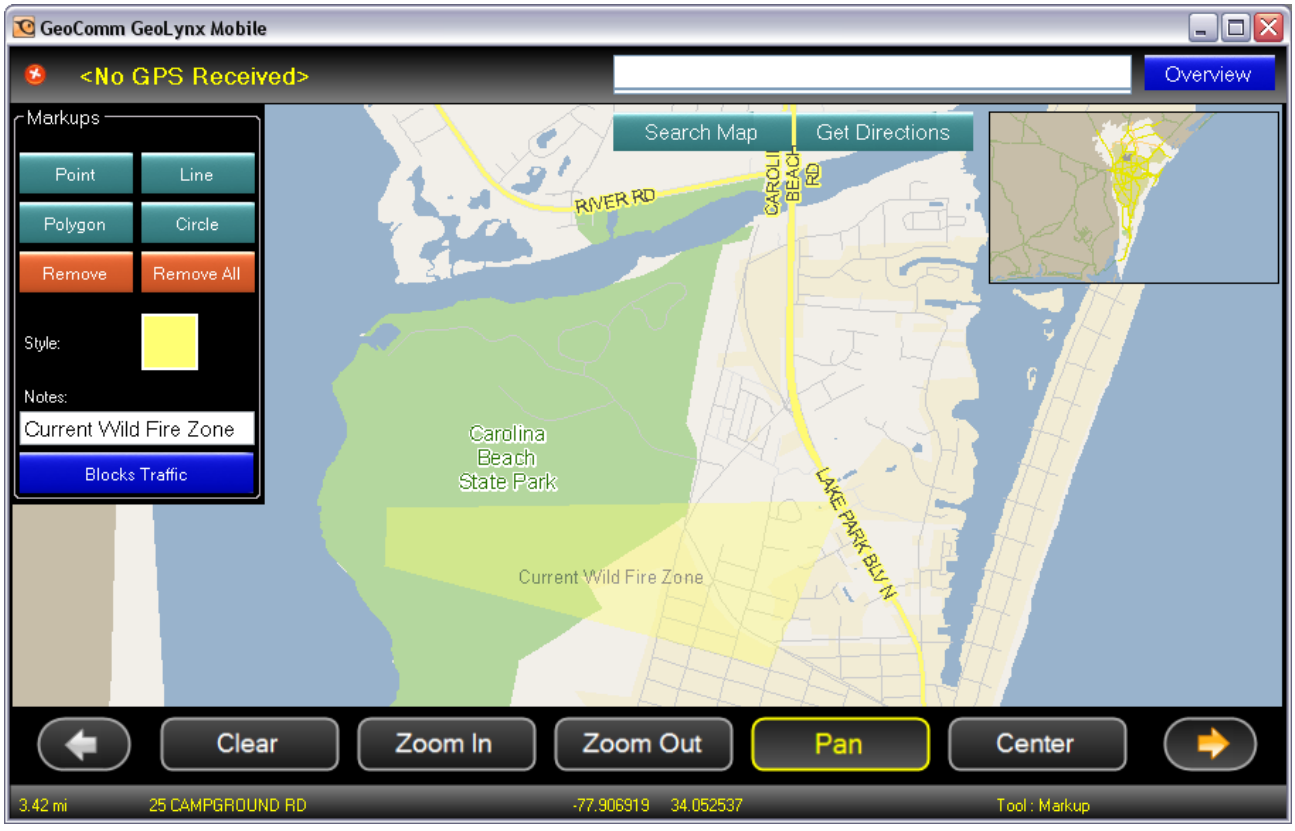


After creating the plume zones, a user can search for map features, such as streets or address points, within the plume. This information is stored in the results grid and can be printed, e-mailed, faxed, or saved.



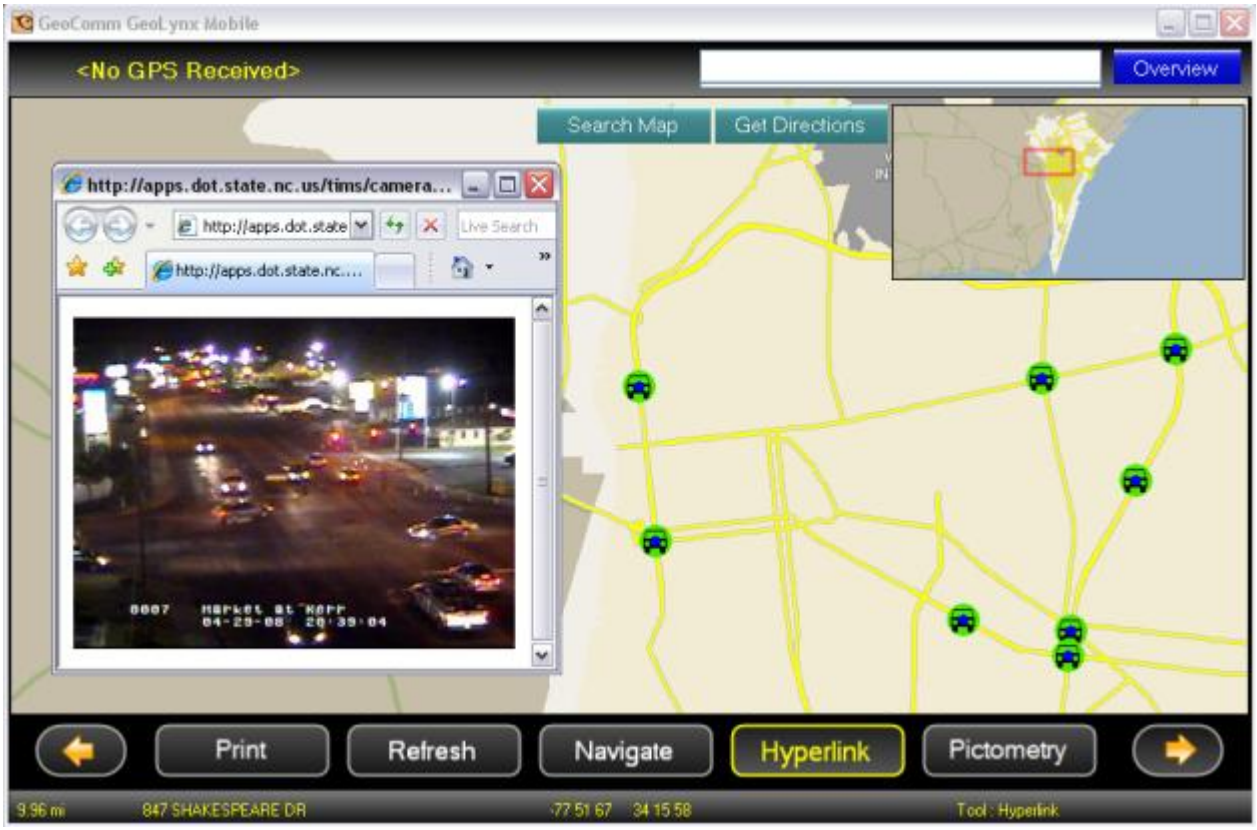
Shared Markups

GeoLynx Mobile creates a Common Operating Picture (COP) by allowing users to markup the map and then shares those markups, such as a current wild fire zone, with other users. Any markups placed on map views are temporary; they are drawn on a tracking layer which does not affect other functions of your map. Markups can be selected and removed one at a time or all at once and can be shared among users. Users can select from a variety of preset styles and colors for points, lines, polygons, and circles. Notes can be added to label the symbol on the map. If desired, the symbol can be selected as traffic block if routing calculations should adjust for a traffic barrier.



Hyperlinks

The hyperlink feature, using inherent ESRI technology in GeoLynx Mobile, allows a single image or multiple images to be associated with a geographic location. The database of images is queried automatically in response to the receipt of a 9-1-1 call or manual address look-up. In an emergency scenario in a location such as a school, golf course, stadium, or campus the hyperlink feature gives emergency response personnel fax access to images such as digital property images, blueprints, CAD drawings, text documents, PDF files, or models linked to a geographic location or address for a visual reference. The screen below shows a live Web traffic camera.



Hot Keys

Hotkeys can be configured in GeoLynx Mobile for fast access to frequently used features truly optimizing it for in-vehicle use.

Pictometry

Pictometry, if available, can be viewed in a separate window.

GeoLynx EOC
EMERGENCY OPERATIONS CENTER

There is a crisis…you need to act quickly…time is everything. With a GeoLynx EOC emergency operations center you have a Web-based "command center" on your computer with vital information required to make decisions confidently and quickly.

GeoLynx EOC's interoperable technology foundation is Web-based GIS, which is proven a vital component for critical situational awareness by displaying massive amounts of location-based information in a simple graphical format. GeoLynx EOC brings all this crucial data together and lets you communicate and control any emergency from anywhere there is a Web browser that can reach GeoLynx EOC…at home, in your office, on your laptop in your vehicle, in a conference room, in many locations across your jurisdiction or across the country.

GeoLynx EOC creates a Common Operating Picture (COP) to gather and share information, strategize, plan, manage, track, and respond to any emergency. System users can see shared user drawn annotations, HazMat isolation protocols, and network cameras. Users can also share 9-1-1 call locations, CAD calls for services, and real-time vehicle locations. In addition, it can display configured public and private Web services such as weather data or fire maps all within the context of online GIS. GeoLynx EOC seamlessly integrates into ArcGIS server enterprises everywhere, bringing the GIS industry's most powerful Web cartographic and spatial analytics to the public safety industry.

GeoLynx EOC helps you intelligently manage emergency operations. It is a multi-user collaborative Web application providing secure access to:

- GIS with layers vital to public safety, homeland security, and municipal operations
- Emergency service zones for law, fire, and medical responders
- Critical infrastructure like gas, telephone, and electric facilities
- AVL - location of fire trucks, ambulances and squad cars, if configured
- Wireline and wireless E9-1-1 call locations, if configured
- CAD incidents, if configured

- Emergency Response Guidebook (ERG)
- Floor plans and 3-D visuals
- Evacuation routes
- Chemical, biological, and radiological plume modeling
- Rip-and-run map printing

All individuals involved in a crisis may access GeoLynx EOC at the same time. With GeoLynx EOC everyone is aware of the complete "lay of the land", so everyone can spatially visualize and analyze data as the events unfold and communicate immediately about decisions that potentially affect lives during every phase of an emergency.

GeoLynx EOC is designed for emergency information sharing in day-to-day use or in high-stress situations, with very little operational complexity.

The system proposed includes access for up to ten concurrent users. Since GeoLynx EOC is a net native Web application it is easy to increase or decrease the number of concurrent users in increments of five. Expandable by subscribed users, it does not require multiple software licenses loaded on individual computers. With just an Internet or intranet connection, authorized users can interact with GeoLynx EOC. With password protection and a cascading privilege user authorization system, administrators control information accessible to individual users or groups of users. Additional users can be added for an additional fee, if desired.

We know GIS data can be costly to create and maintain and usually only benefits a few users with expensive GIS software installed on their desktops. GeoLynx EOC leverages this valuable data by making it available to many users throughout your jurisdiction. GeoLynx EOC can be used to extend a GIS enterprise to your public safety personnel, so multiple departments can benefit from dollars invested in GIS data development and software through the tiered user privileges architecture.

Benefits and Features

- Provides a single common operating picture (COP) for emergency operations and public safety staff
- Operates across disparate offices and agencies
- Expandable by subscribed users
- Requires no other special software on client computers beyond a Web browser
- Web server hosted GIS application, can run over LANs or WANs, including the Internet
- Enables users to share critical information from remote locations
- Reduces need for paper maps and plotters during EOC activations and mobile command post staging
- Displays high-level, detailed GIS data in a Web browser
- Users can markup and redline maps right in the Web browser, sharing user drawn annotations to all users
- Includes search and query tools
- Includes rip-and-run map printing
- Built-in Emergency Response Guidebook (ERG) HazMat isolation protocol mapping
- Built-in ALOHA chemical plume footprint mapping
- User authentication controls data and features available to users and groups
- Supports ESRI GIS data formats including shapefiles and file, personal, and enterprise geodatabases, and Web map services

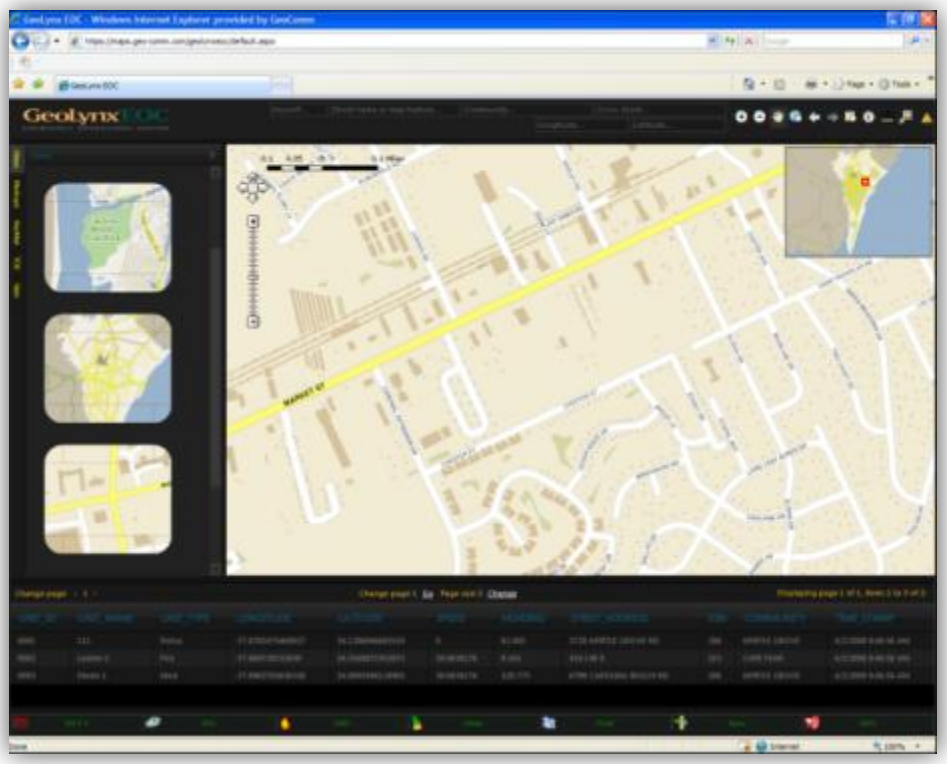
- Embedded Pictometry, if available
- Modern technology such as Asynchronous JavaScript and XML (AJAX) avoids time consuming page redraws and provides smooth animation and transparency of controls on the Web browser
- Expandable to include Web-based
  - Emergency Notification System (ENS) capability
  - Automated Vehicle Location GeoLynx AVL capability
  - Historical incident mapping GeoLynx Stats capability
- Expandable to display real-time 9-1-1 calls, CAD incidents, and vehicle locations

User Interface

GeoLynx EOC is installed on a Web server. Users access the application via a Web browser. The Web application automatically resizes to fit in the user's Web browser, displaying the maximum map size possible given the combination of panels the user has open.

The GeoLynx EOC Web page is organized into expandable and contractible panels. The user interface (UI) is a command and control (C2) style which are more like dashboards, control panels, and cockpits, unlike office

automation applications where there are many menus and dialog boxes to navigate. So all needed information and functionality is on a single screen enabling users do their jobs more efficiently in high stress, high speed environments.



Supported GIS Formats

GeoLynx EOC is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefiles
- Web Map Services
- DBMS Event Tables

GeoComm services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx EOC.

System Architecture

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations, built on the most modern and advanced GIS technologies.

GeoLynx EOC is a Web application built on ESRI's ArcGIS 9.3 Server Enterprise Standard Edition and ASP.NET AJAX with VB.NET and C# code behind programmed in Visual Studio 2005. GeoLynx EOC uses a popular third party AJAX control toolkit called Telerik RAD Controls for ASP.NET AJAX to help provide a very modern Rich Internet Application (RIA), with a fluid Web 2.0 style user interface.

ArcGIS server is an essential component for critical situational awareness allowing display of massive amounts of unified location-based information in a simple graphical format. Because GeoComm is an ESRI Business Partner, we provide the ArcGIS Server technology embedded right into GeoLynx EOC, used solely for this product, bringing ESRI's industry leading technology of the ArcGIS framework to emergency response and management organizations.

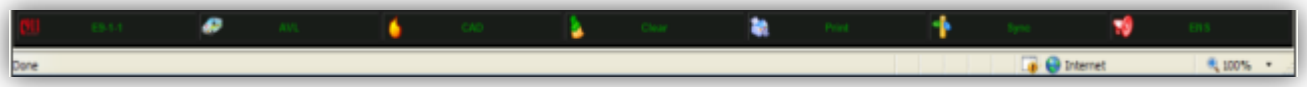
GeoLynx EOC is a modern Rich Internet Application (RIA). It also uses modern technology such as Asynchronous JavaScript and XML (AJAX) to avoid time consuming page redraws and provide smooth animation and transparency of controls on the Web page.

GeoComm recognizes the need for the most current and forward-looking GIS platform technology in order to provide software that can grow and be supported for years to come. GeoLynx EOC's embedded ArcGIS Server is the most current and future GIS technology platform from ESRI.

Command Tools

The command buttons at the bottom of the Web page provide tools for users to interact with GeoLynx EOC. These tools include:

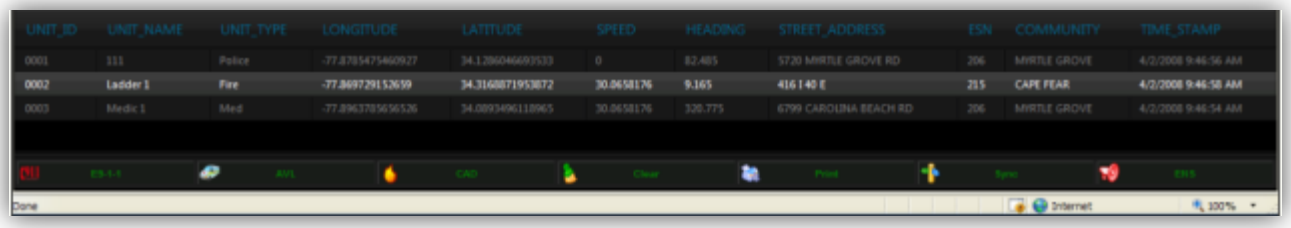
- E9-1-1 – Switches the grid view to 9-1-1 calls, if configured
- AVL – Switches the grid view to vehicle telemetry data, if configured
- CAD – Switches the grid view to current CAD calls for service, if configured
- Clear – Clears the current grid view
- Print – Send the current map view to a printer
- Sync – Displays markups added by other users to your view
- ENS – Opens the ENS module, if configured



Grid View

The grid view at the bottom of the Web page is used to display tabular data in GeoLynx EOC. Information displayed in the grid view may include:

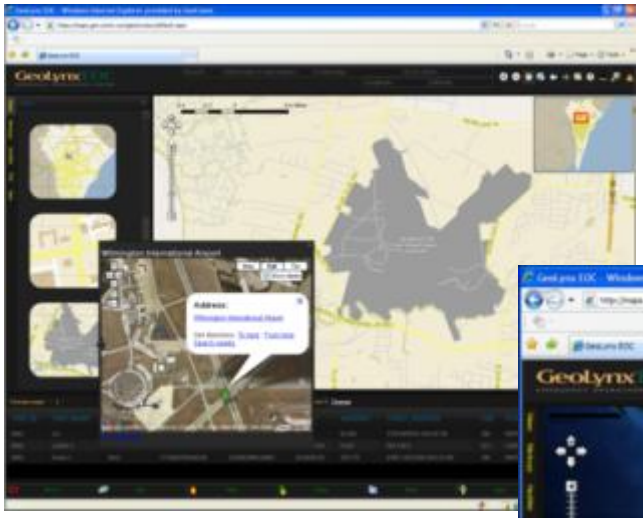
- Address search results
- Vehicle information, if configured
- Current 9-1-1 call data, if configured
- Current CAD call data, if configured
- Spatial selection results, such as buildings inside an isolation protocol

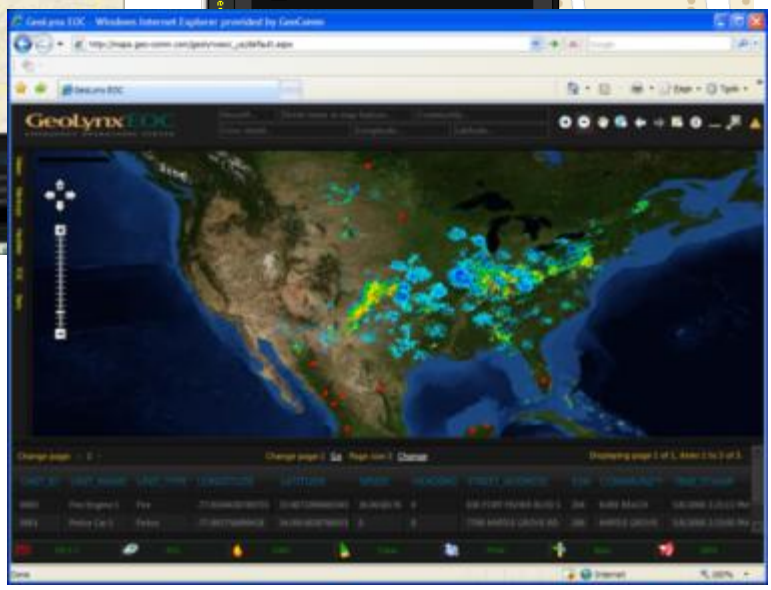


Web Services

GeoLynx EOC has the ability to read and display data from online sources, including WMS, KML, ArcGIS Server Map Services, ArcGIS Server Geodata Services, and GeoRSS (simple and GML) One example of these is ESRI's BETA product, ArcGIS Online, which is supported by GeoLynx EOC. It adds nationwide coverage of aerial imagery (1 to 3 meter resolution), scanned USGS topographic maps for the entire country, and TeleAtlas street centerline data all at no charge for GeoComm ArcGIS server users.

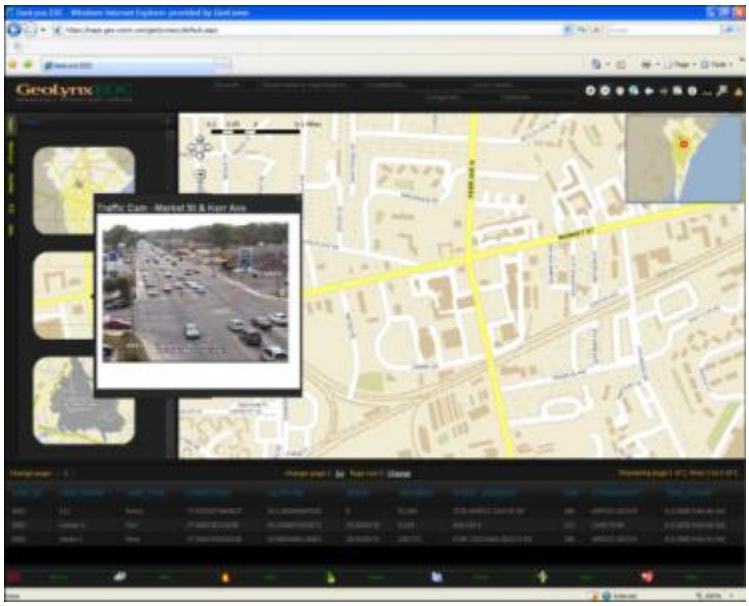
There are many free and subscription based Web map services that GeoLynx EOC can consume directly. For example, the Geography Network is a global network of geographic information users and providers. It provides the infrastructure needed to support sharing geographic information among data providers, service providers, and users around the world. Through the Geography Network, GeoLynx EOC can access many types of live dynamic maps such as natural hazards like earthquakes, tsunamis, and volcanoes, and other types of hazards detected by the US Defense Meteorological Satellite. ESRI's ArcWeb Services also provide fee-based Web services that GeoLynx EOC can display such as weather data from a commercial Web service provider.





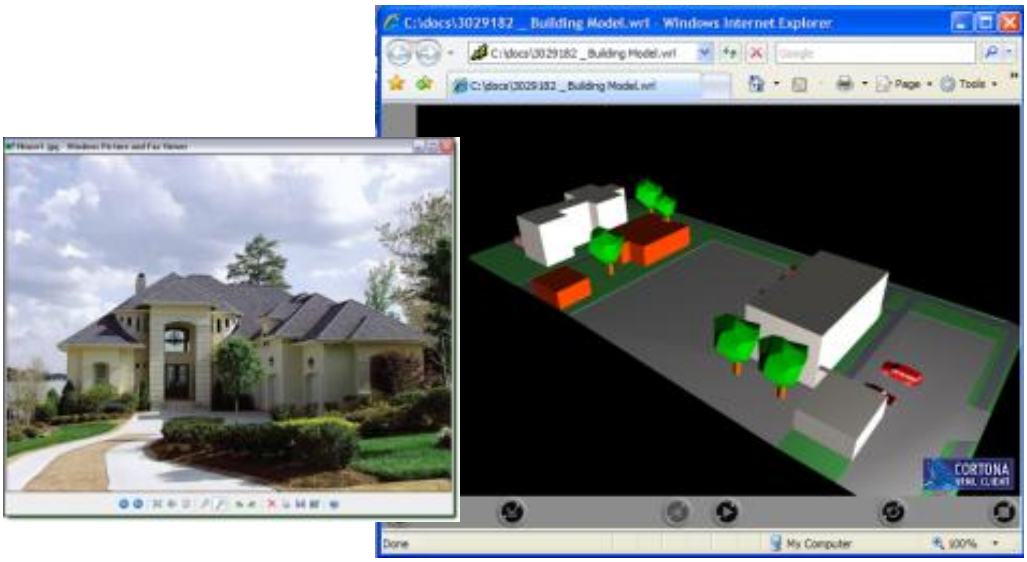
Hyperlinks

The hyperlink feature, using inherent ESRI technology in GeoLynx EOC, allows a single image or multiple images to be associated with a geographic location. The database of images is queried in response to the receipt of a geographic feature search. In an emergency scenario at a location such as a school, golf course, stadium, or campus, the hyperlink feature gives emergency response personnel access to images such as digital property images, blueprints, CAD drawings, text documents, PDF files, or models linked to a geographic location or address for visual reference.



Hyperlinks can be any of following three types.

- A document or image file – the file specified for that feature in the selected hyperlink field is launched using the application with which that file type is currently associated.
- The Web page (URL) specified for that feature in the selected hyperlink field is launched in the default Web browser. An example is Web cam URLs.
- Macro - When a feature is clicked with the Hyperlinks tool, the value specified for that feature in the selected hyperlink field is sent to the macro specified.



Pictometry Integration

GeoLynx EOC makes location data available to Pictometry to automatically input into their system. The data pulled by Pictometry from GeoLynx EOC then displays the 3D images available in Pictometry. Pictometry integration in GeoLynx EOC offers additional location display functionality. A benefit in uniting these solutions is it gives telecommunicators and emergency responders instant emergency location details. With Pictometry integration in a map view it is accessible by telecommunicators to measure heights of buildings, rotate pictures, view locations of doors and windows, etc. for the most advantageous view of incident locations from the PSAP.

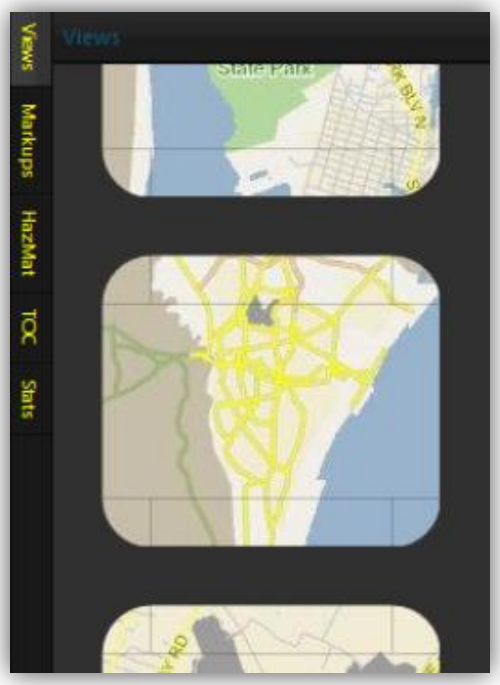
Feature Panels and Tools

The left side of the Web page contains tabs users can select to alternate between feature panels including:

- Views
- Markups
- HazMat
- Table of Contents
- Stats

In addition, GeoLynx EOC contains a number of additional easily accessible tools intended for simple interaction with the map including:

- Map Toolbar
- Locator Map
- Dynamic Pan and Zoom
- Scale Bar



Views

The views panel shows saved thumbnail views users can select and easily zoom to an area on the map such as a city, township, or public place.

Markups

The markups panel provides a number of drawing tools used to mark temporary annotations on the map such as closed roads, accident site, and special features. Users can add points, lines, polygons, and text to the map.

Markups drawn by users can be shared with other authorized users. When a markup is no longer needed, it can be easily cleared from the map. Markups are a key tool for creating a common operational picture for all users of the system (e.g. to mark changing boundaries of a critical event such as a chemical spill, fire, or other disaster).

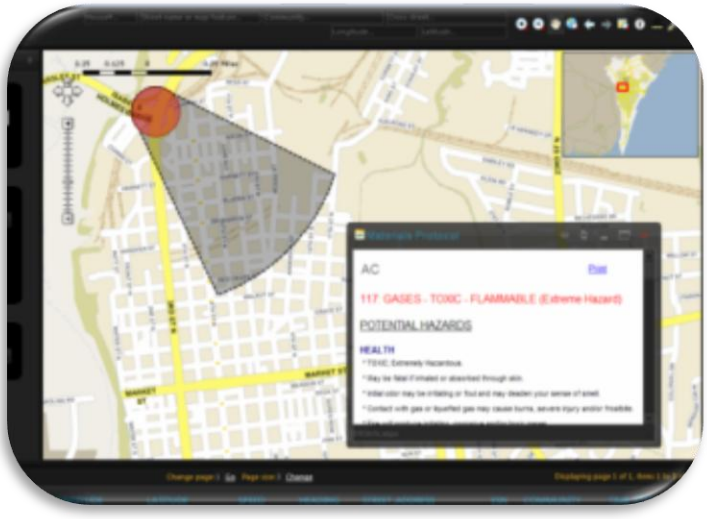
HazMat

The HazMat panel has tools for mapping hazardous materials incidents. Using this feature Emergency responders more effectively and quickly manage hazardous materials (HazMat) incidents.

The HazMat feature provides a means for displaying a geographic model (plume) of a chemical incident. Spatial selection of addresses provides flexibility in locating multiple locations for large scale emergencies.

Manual Chemical Plume

A manual chemical plume can be created by simply entering information into the chemical plume tool. Information related to the specific incident can be obtained from available resources such as the local weather station. This information may include:



- wind direction
- wind speed
- elapsed time since the chemical incident
- chemical diffusion rates

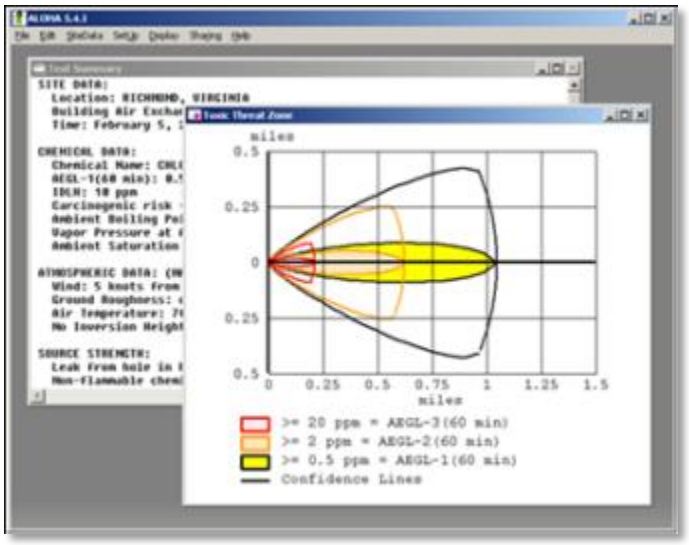
The chemical plume modeler creates two zones reflecting areas of higher and lower concentration of hazardous chemicals.

The two zones include:

- The initial isolation zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material.
- The protective action zone defines an area downwind from the incident in which persons may become incapacitated and unable to take protective action or incur serious health effects.

Aerial Locations of Hazardous Atmospheres (ALOHA)

The chemical plume modeler has the ability to accept Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files. ALOHA was developed by the Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention Office (CEPPO), and the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration. It was developed for individuals responding to chemical accidents to predict the rates of dispersion of specified chemicals based on climatic conditions and other variables involved in a chemical spill.



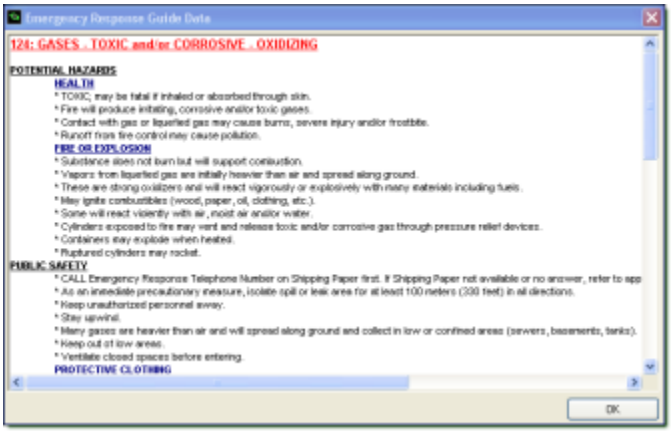
This program allows users to develop a footprint showing the concentration areas that pose a threat to human life. These footprints can be imported and displayed within GeoLynx EOC.

Emergency Response Guidebook

GeoLynx EOC has an additional tool for mapping hazardous materials: the Emergency Response Guidebook (ERG). The ERG was developed jointly by the United States Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in quickly identifying specific or generic classifications of material(s) involved in an incident and protecting themselves and the public during the initial response phase of the incident.

Where once a user had to manually use the paper book to look up a chemical or placard number and determine the response and isolation protocols, GeoLynx EOC now automates this. A user needs to only type part of a chemical name, and the search will auto complete as they type. They may also type in a placard number if it is known. GeoLynx EOC takes this one step further, and maps the isolation protocols so they can be visualized and used as selection polygons for GeoLynx EOC ENS, for making mass outbound notifications.

A table included in the ERG lists, by ID number, Toxic Inhalation Hazard (TIH) materials and provides two different types of recommended safe distances: initial isolation distances and protective action distances. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase with time.



When the hazardous material is selected a user can also view the details in the ERG data window. The data window displays the potential hazards, public safety, and emergency response information for the selected material.

After creating the plume zones, a user can search for map features, such as streets or address points, within the plume. This information is stored in the results grid and can be printed, e-mailed, faxed, or saved.

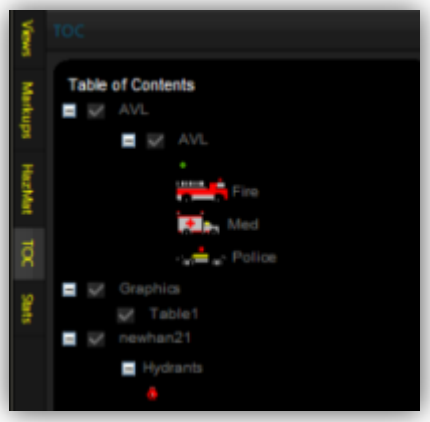
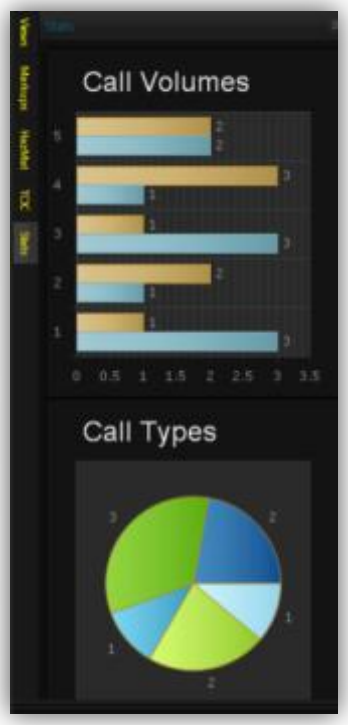


Table of Contents

The table of contents panel contains a list of GIS data layers available to view on the map, along with a visual depiction of symbology for feature types in the layers. It acts as a legend for the map and allows users to toggle layers on and off as desired.

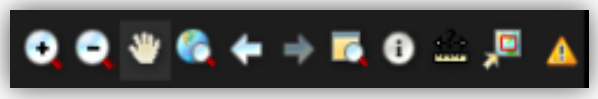


Stats

GeoLynx Stats is an add-on module to GeoLynx EOC that enables crime mapping and geospatial analysis, graphing, and report generation, from data queried from a Computer Aided Dispatch (CAD) system. This module can be added for an additional fee, if desired.

Map Toolbar

Users can easily interact with the map using navigation tools such as zoom in, zoom out, pan, and full extent which are found on the map tools toolbar in the upper right corner of the GeoLynx EOC window. Because GeoLynx EOC is built on ESRI's ArcGIS Server these tools resemble those found in other ESRI products such as ArcView.



Zoom In – allows users to click drag or click on the map to zoom in to display a desired area.

Zoom Out – allows users to click drag or click on the map to zoom out to display a desired area.

Pan – allows users to change the view of a map by dragging it with the pointer.

Zoom to Full Extent – allows users to zoom to the full extent of the map view.

Locator View Toggle On/Off – allows users to turn on and off the locator map.

Identify – assists with identifying features on the map.

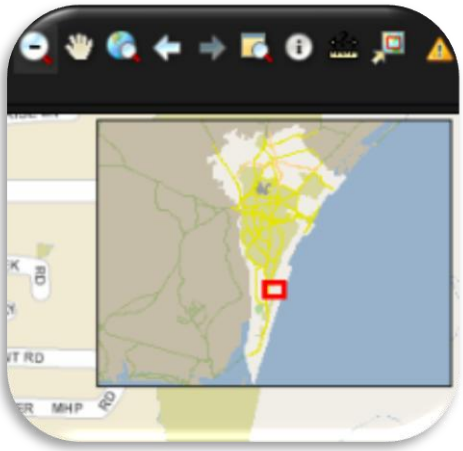
Measure – allows users to measure distances from one point to another to calculate cumulative distance from point to point to point and beyond.

Pictometry Tool – allows users to click a spot on the map to see the Pictometry imagery associated with the selected geographic feature, if available.

Previous View – allows users to change their map view back to the original view after a recent change. Similar to the "back" button on Internet Explorer, GeoLynx EOC is capable of storing up to five recent views for any map displayed on the GeoLynx EOC screen.

Next View – allows users to move forward one map view to a previously displayed map view.

HazMat Placement Tool – allows users to compute a chemical cloud footprint using ALOHA or using the ERG to determine a geographic isolation protocol, and then click on the map at the point of the hazardous materials release to develop the plume



Locator

The locator map is an overview of the full extent of the current map.

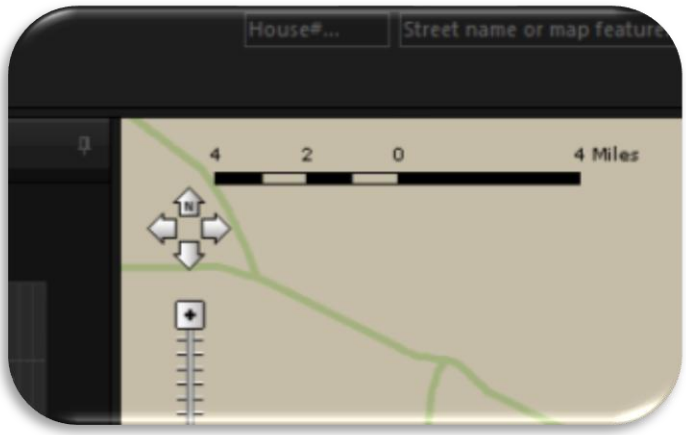
The locator map contains a red rectangle indicating the extent of the main map view. The user may drag and resize this red rectangle interactively to change the extent of the main map view. The locator map and rectangle are also useful to give the user instant context about where in the jurisdiction the current main map view is zoomed to.

Dynamic Pan and Zoom

In the upper left corner of the map are dynamic pan and zoom controls. By clicking any of the arrows in the dynamic pan tool the map moves one preset increment to the direction selected. By selecting the + or – on the dynamic zoom tool the map either zooms in or out by one preset increment. The user can also drag the zoom bar up or down to zoom the map in or out.

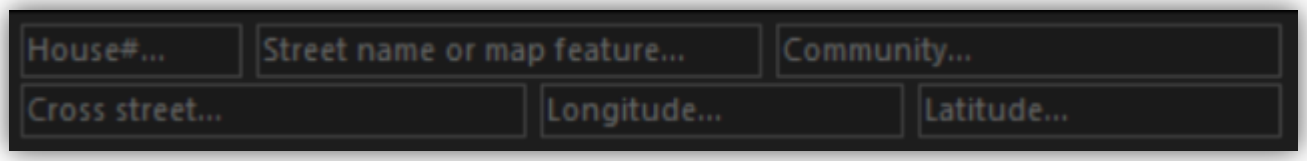
Scale Bar

In the upper left corner of the map is a scale bar. This enables users to determine the approximate actual distance on the map.



Searching

In GeoLynx EOC users can search for street addresses, common place names, intersections, and longitude/latitude coordinates on the map. The search panel includes an auto-complete feature to assist the user when typing in a location to search for.



GeoLynx EOC uses ESRI Locators and supports multiple locators so users can search layers containing features such as street centerlines, GPS points, and lakes all at once. This is ESRI's current geocoding technology and the manner in which GeoLynx EOC converts text such as a street address, common place name, or other features such as a hospital location, lake name, or mile markers into mappable x,y coordinates. Essentially, anything you can search for can be typed into the search tool and be potentially located. This one search function is streamlined so users only need to go to one location to find items in their GIS data. The advantage of this method of searching is that it is fast and supports searches for similarly spelled words – so even if there is a misspelling in a street name or other location name, it is still found.

GeoLynx SYNC
INTEROPERABLE REPLICATION & PROPAGATION

Quick, reliable, and secure…GeoLynx Sync alleviates the time-consuming and error-prone task of manual data synchronization. From an administrative workstation file updates can be synchronized on a regular basis with no interference with the day-to-day call-taking operations of a mission-critical environment.

GeoLynx Sync full-feature Client\Server synchronization software allows file replication to any computers on a network. This feature ensures reliable high data availability and eliminates the system administrator's tedious task of traveling to numerous individual workstations and individually downloading the updated files or copying them from CDs to each workstation.

GeoLynx 9-1-1 typically uses map data stored locally on each GeoLynx 9-1-1 workstation. This design is optimal for emergency applications that must operate in the absence of all other network connections (in the event of network failure). Because map data is stored locally, each time existing files are modified or new files are created, the system administrator must easily distribute and secure the essential data. GeoLynx Sync's enhanced performance allows immediate and automatic updates from a master computer to every GeoLynx 9-1-1 workstation.

GeoLynx Sync is a cost-effective data management solution. Whether you need to synchronize files between workstations or multiple servers, GeoLynx Sync makes the task a simple step in your daily work.

GeoLynx Sync's Tools:

- Make it easy to synchronize files
- Ensure identical files in multiple locations
- Allows files are in-sync with the touch of a button
- Are affordably priced
- Offer software setting and configuration synchronization

General Overview

GeoLynx Sync leverages the efficiencies of network distributed data storage with local data storage speed and network independent reliability. GeoLynx Sync seamlessly integrates into GIS map maintenance software and/or GeoLynx 9-1-1 for managing map files, supporting file updates and changes in configuration settings to individual GeoLynx 9-1-1 workstation.

Updated files can be copied to GeoLynx 9-1-1 workstations with no interaction with the dispatcher. Updates can be made manually or can be scheduled to transmit automatically.

Packaged update files as compressed and encrypted transfer files for efficient and secure transmission through the network.

GeoLynx Sync Server

The GeoLynx Sync Server is designed to push software settings, software updates and GIS updates to client positions from a PSAP map server. The Server license is typically run on the administrators' workstation and is run in conjunction with a GeoLynx 9-1-1 Admin license. Having the GeoLynx 9-1-1 Admin license on the Server allows verification of updates to ensure easy integration into the system when synchronized.

GeoLynx Sync Client

Each GeoLynx 9-1-1 workstation contains the GeoLynx Sync Client software. The Client software on each workstation receives update packages from the Server.

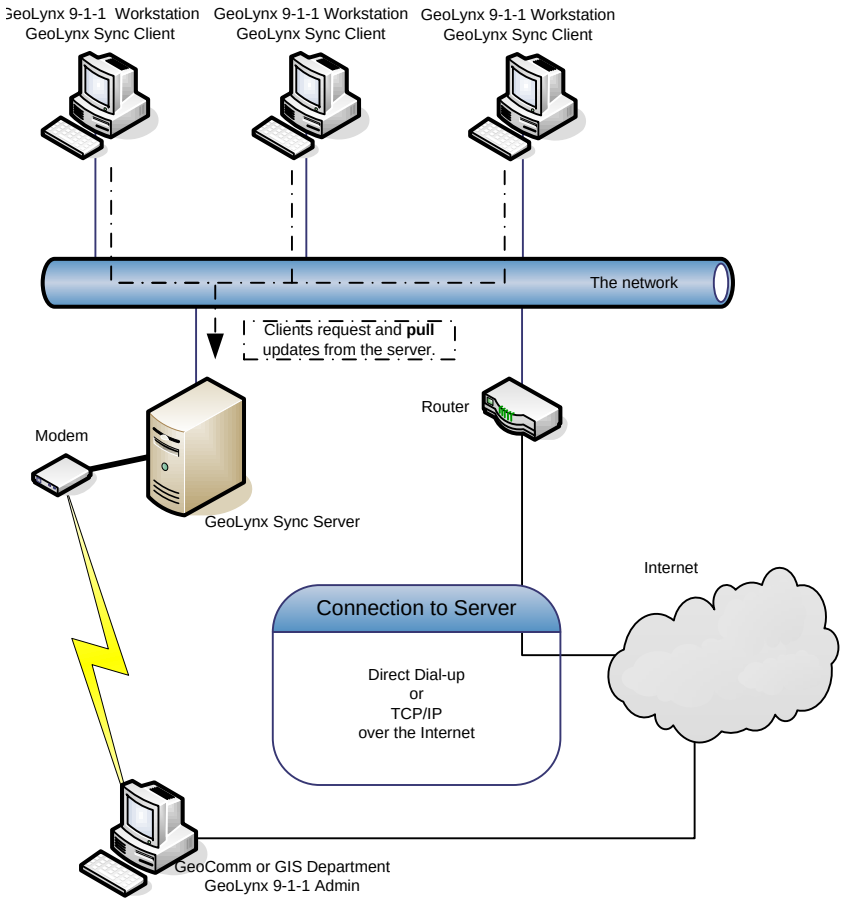
The Client at each GeoLynx 9-1-1 workstation will wait for a GeoLynx 9-1-1 logout / logon event to apply updates from the update package. Update packages can be compressed for transmission through the network.

Mapping Platform

GeoLynx Sync is not platform specific. The software can be used with the ESRI or MapInfo version of GeoComm's software suite.

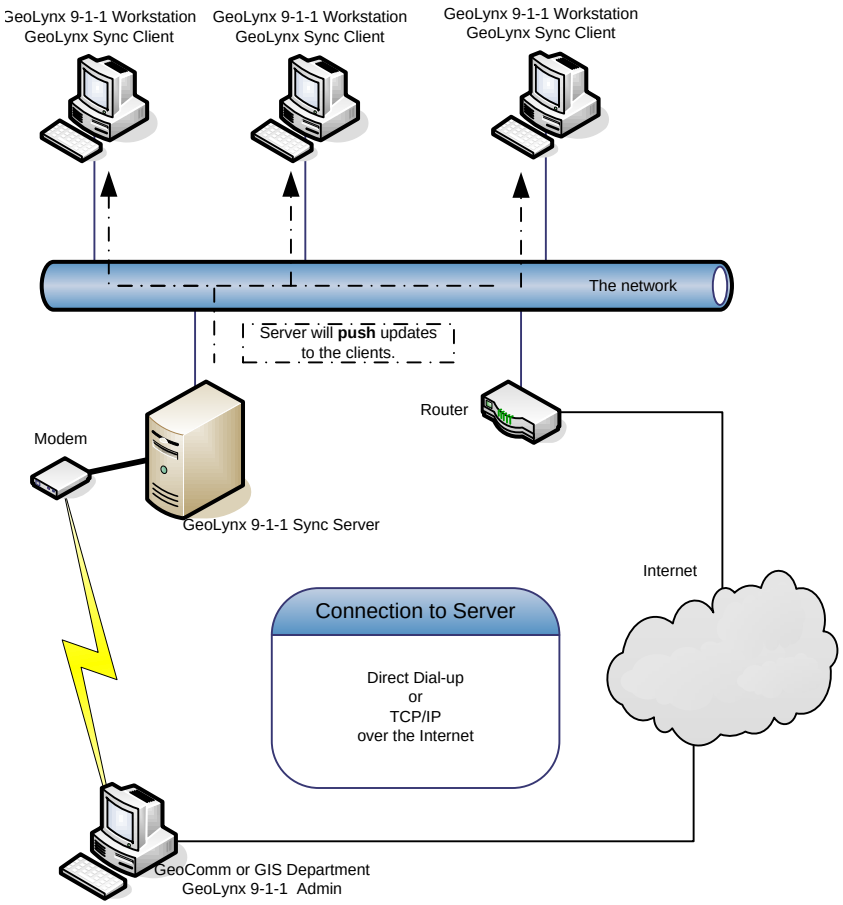
Pull Process

1. An updated package is created and placed in a specific location on the local or wide area network.
2. The user logs on to GeoLynx 9-1-1, launching the GeoLynx Sync Client software.
3. GeoLynx Sync Client pulls the available package and updates the files on the workstation using the pull process flow.
4. In a pull process the destination path would be a general path name to where GeoLynx 9-1-1 is located on the individual machines. In order to set up a pull, GeoLynx 9-1-1 must be loaded in the same hard drive location on each workstation pulling the transfer package.
5. If the update package is newer than the current package on the workstation(s) the software will pull the update package onto the workstation, update the files and launch GeoLynx 9-1-1 with the updated files.



Push

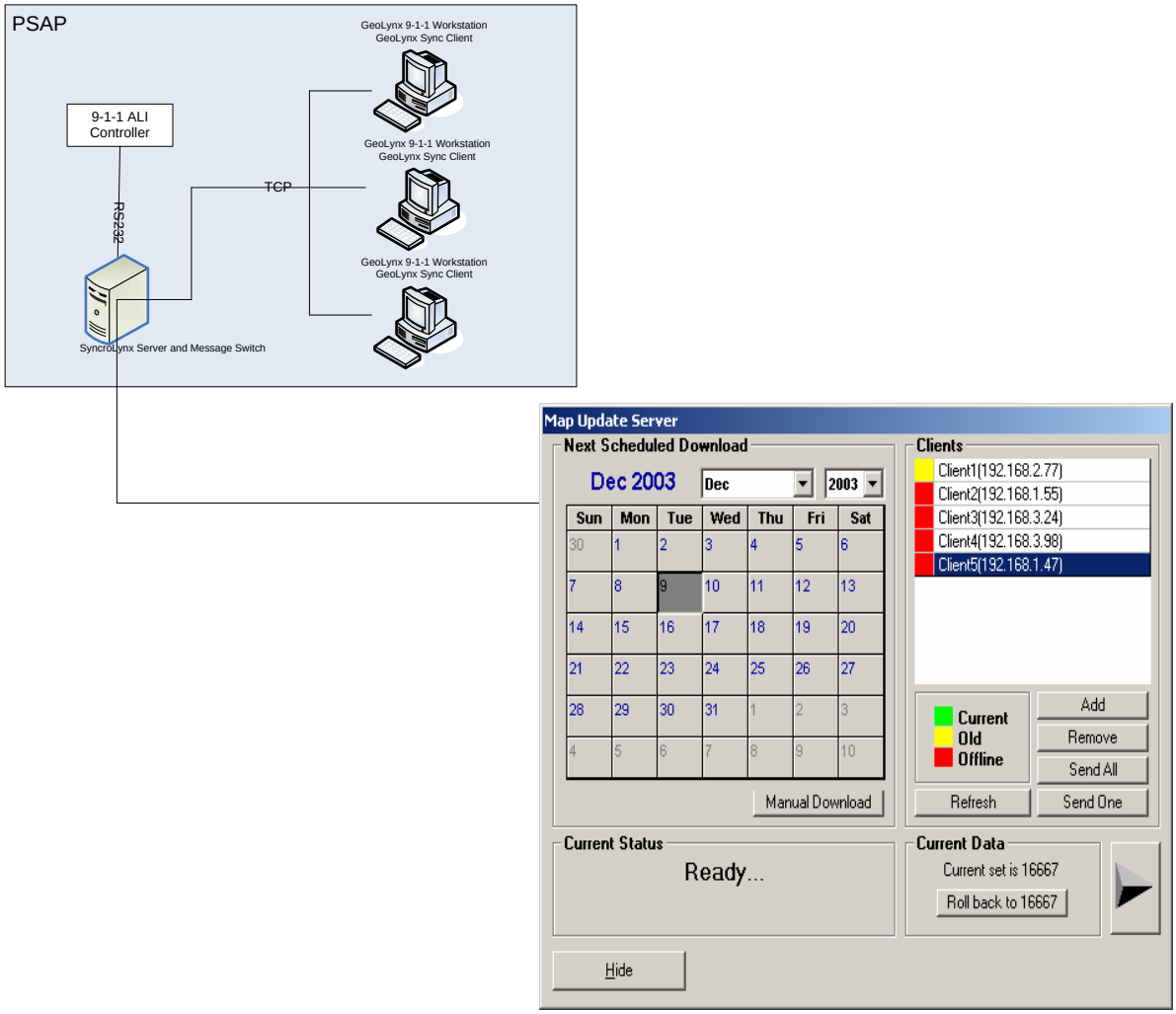
Due to the nature of the push process, the deployment package requires a more complex destination path. Since the data is being pushed to the workstation, GeoLynx 9-1-1 must be closed at the time the workstation receives the push. During a push, the data is being pushed from a network location to the individual workstations using GeoLynx Sync Server.



Within the context of the pull and push process there are multiple configurations. The Visio diagrams above demonstrate a simple, one-location configuration.

GeoComm knows that flexibility to meet the needs of our customers is important and we have developed a number of ways for GeoLynx Sync to be configured, particularly in regional 9-1-1 jurisdictions.

Map Update Server



The Map Update Server allows you to schedule automatic updates and tracks which client applications are current. It is possible to select and update one client at a time or multiple clients. Updates can be scheduled or can be manually completed at anytime.

Exhibit - C Pricing for the City of Frisco, Texas

Itemized listing of products and services to be provided under this agreement:

Qty	Description	Unit Price	Total Price
	Map Data, 9-1-1 Database, and MSAG Analysis		$1,995
	Dispatch GIS Setup Services		$1,000
8	GeoLynx 9-1-1 Dispatch Mapping Software	$5,500	$44,000
	GeoLynx 9-1-1 Installation and Training		$8,400
	GeoLynx 9-1-1 Hands-On User Training vs. Lecture Based (Additional Training Cost)		$2,625
	GeoLynx 9-1-1 Software Support and Maintenance	Annual	$6,600
1	Custom CAD Interface Development		$8,000
	On-Site Installation and Configuration		$2,290
	Custom Interface Support and Maintenance	Annual	$1,200
8	GeoLynx AVL Software	$3,500	$28,000
	GeoLynx AVL Installation and Training		$7,000
	GeoLynx AVL Software Support and Maintenance	Annual	$4,200
	IP AVL Implementation		$5,000
81	GeoLynx Mobile Software	$550	$44,550
	GeoLynx Mobile Installation and Training		$2,600
	GeoLynx Mobile Software Support and Maintenance	Annual	$6,683
81	Standard IP AVL Client Interface	$100	$8,100
81	Standard IP AVL Client Interface Installation	$20	$1,620
81	Standard IP AVL Client Interface Software Support and Maintenance	Annual	$1,620
	GeoLynx EOC GIS Setup Services		$1,000
1	GeoLynx EOC Software (Includes AVL Viewer, 9-1-1 Call Viewer, and CAD Incident Viewer)		$32,250
	GeoLynx EOC Configuration, Installation and Training		$5,970
	GeoLynx EOC Software Support and Maintenance		$7,359
	15% Discount (off one-time costs)		($30,266)
			$201,796

Pricing Notes:

1. This fee includes all travel and associated costs and should be considered firm.
2. Software support and maintenance services shall commence 90 days after software installation and continue for one year. Software support payments are dependent on payment terms determine through contract negotiations. Payment of software support and maintenance are not required until 90 days after the ATP is signed.
3. Typical software implementation turnaround is 90 days. A finalized project schedule will be determined at the start of the project.
4. The 15% discount will be applied to the one-time costs if all essential software and services are contracted for at the same time.
5. GeoLynx 9-1-1 is a single- use license. One license is needed per workstation.
6. GeoLynx 9-1-1 workstations must meet the minimum GeoLynx 9-1-1 hardware requirements as outlined in this proposal.
7. GeoLynx 9-1-1 operation requires a computer act as the system server. The customer is responsible to provide this system server.
8. Installation and training prices includes implementation of software at the primary PSAP and the emergency operations center. This price includes installation, training, implementation, travel, and per diem costs.
9. Installation pricing includes two days of on-site installation and configuration. This price includes installation, training, implementation, travel, and per diem costs.
10. Maintenance or improvements for the custom interface will be performed on a time and materials basis with a $125 per hour development charge.
11. GeoComm has worked with numerous CAD, CPE, and RMS software vendors to create interfaces between their CAD, CPE, and RMS systems and the GeoLynx 9-1-1 Dispatch GIS System. On average, an interface takes roughly 60 to 80 hours to complete. GeoComm will work with you and the appropriate vendors to analyze the requirements and create an estimate for the required interface, depending upon how the other vendors anticipate the use of GeoComm's open API. There may be additional costs from other vendors for their interface work or access to their CAD, CPE, RMS, or crime analysis data.
12. GeoLynx AVL is an add-on module to GeoLynx 9-1-1. A license of GeoLynx 9-1-1 or GeoLynx 9-1-1 Admin is required to run GeoLynx AVL. GeoComm understands GeoLynx AVL will reside on the proposed licenses of GeoLynx 9-1-1.
13. GeoLynx AVL is a single-use license. One license is needed per workstation.
14. The installation and training prices for GeoLynx AVL reflect price if it is facilitated at the same time as the GeoLynx 9-1-1 installation and training. Price will increase if purchased and installed at a later date. This price includes installation, training, implementation, travel, and per diem costs.
15. Above costs do not include required GPS units, PC interface cables, and associated installation as well as a data service plan to provide for data transport to and from the vehicles being tracked at the dispatch center. The City of Frisco is responsible for providing these elements.
16. GeoLynx Mobile is a single-use license. One license is needed per mobile data terminal.
17. GeoComm anticipates the ability to install up to five units of GeoLynx Mobile on the City of Frisco provided mobile data terminals per day. GeoComm is prepared to be on-site for one day for installation and training. The City of Frisco may determine the number of actual days on-site based on the availability of the City of Frisco's IT Department. Additional days will be billed at $1,000 per day. GeoComm will train the City of Frisco designee to install the remaining licenses, if desired. If additional days are desired on-site they must be contracted for prior to on-site installation and training. The installation and training price includes installation, training, implementation, travel, and per diem costs.
18. The Standard IP AVL Client Interface is not needed if the City of Frisco installs cellular data modems with embedded GPS in each vehicle unless it is desired for each individual unit to see the fleet of vehicles. Above costs do not include required cellular data modems with embedded GPS, PC interface cables, and associated installation as well as a data service plan to provide for data transport to and from the vehicles being tracked and the dispatch center. The City of Frisco is responsible for providing these elements.
19. If standard GPS units are used with mobile data terminals and aircards, the Standard IP AVL Client interface is required for mobile data transfer to communications center and across a fleet of vehicles.
20. The City of Frisco is required to purchase and provide a dedicated Web server for GeoLynx EOC to reside on meeting provided hardware specifications. Alternatively GeoComm can provide this dedicated Web server for an additional $6,500.

GeoLynx 9-1-1 System

Locating and displaying emergency incidents in your jurisdiction is fully automated by installing GeoLynx 9-1-1. When a 9-1-1 call is placed, GeoLynx 9-1-1 automatically captures the address from the ALI stream and instantly plots an arrow at the caller's location on your digital base map.

GeoLynx 9-1-1 is a full-featured, professional-level desktop mapping software package specifically tailored for 9-1-1 emergencies.

GeoLynx 9-1-1 is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI file geodatabase
- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefile

In addition, services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx 9-1-1.

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations.

Because GeoComm is an ESRI business partner, we are able to provide the latest version of GeoLynx 9-1-1 dispatch mapping software. GeoLynx 9-1-1 uses ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to 9-1-1 dispatch centers.

GeoComm recognizes the need for the most current technology to be implemented to ensure the software is maintained and supported for years to come. The ArcGIS framework is the most current and future technology platform from ESRI.

GeoLynx 9-1-1 is also built on the Microsoft .NET framework. This is Microsoft's current and future platform and it is ensured to work with the new Microsoft technology, such as Windows Vista.

Additionally, advanced, scalable Database Management System (DBMS) technology is used in GeoLynx 9-1-1 for storing data and configuration settings. Benefits of using SQL server include significantly increased performance capacity for both AVL and CAD. For example, for AVL, Microsoft SQL server allows 100, 1,000, and more units to be moved on the map in a single transaction unlike other DBMS technology which move units individually on a map during a transaction. This same efficiency extends to CAD calls for service.

The GeoLynx 9-1-1 user interface (UI) is a command and control (C2) style. C2 UIs are more like dashboards, control panels, and cockpits, unlike office automation applications where there are many menus and dialog boxes to navigate. The intent is to put all needed information and functionality on a single screen, to enable users do their jobs more efficiently, in high stress, high speed environments.

Immediate access to features and functions in the side panels are available in the GeoLynx 9-1-1 display. Some major features include HazMat, Routing, GeoLynx Stats, Markups, and much more. The ability to expand the map is useful when GeoLynx 9-1-1 is on a large format screen or projected

on a wall of a PSAP as an overview, with no human interaction. With no user, there is no need for the human interface tools.

To maximize the map view display, the panels to the left, right, and bottom of the main map view can be hidden. Any combination of panels can be hidden:

The features panel includes several features to help your organization more effectively navigate to specific map views, display map layers, use geographic information, and manage emergency incident statistics.

As you work with your map, you can easily change how you view the data it contains. Most of the tools for navigating such as zoom in, zoom out, pan, and full extent are found on the map tools toolbar, the topmost toolbar in the GeoLynx 9-1-1 window. Because GeoLynx 9-1-1 is built on ESRI's ArcGIS Engine these tools resemble those found in other ESRI products such as ArcView.

The main map view displays the GIS data, ALI, and any tracked vehicles and is configurable for up to three map panes. So users can customize their individual map display to meet their emergency dispatch needs.

GeoLynx 9-1-1 displays a status bar at the bottom of the application window at all times. The status bar contains information about the current mouse pointer location. The system administrator can configure the status bar to display any combination of the following:

- Current zoom level of the map (width of the map in miles)
- Calculated street address at the mouse pointer
- Coordinates of the mouse pointer:
  - In decimal degrees
  - In degrees/minutes/seconds (DMS)
  - In degrees/decimal minutes (DDM)
- ESN of the current mouse pointer location

The results grid displays the results of several GeoLynx 9-1-1 functions. Most commonly the results grid will display a list of the E9-1-1 calls received by your organization. By double-clicking any of the calls in the list, the map views zoom to that call location. The specific fields that will display can also be configured.

Other data which may display in the results grid includes

- Plume model results
- GeoLynx Stats query results
- Results for routing requests
- CAD calls
- AVL information

The information panel includes the Locator Pane, Search Pane, and Call Information Pane.

The locator pane displays an overview of the jurisdiction. This panel can be used to quickly move the active map view to another location in your jurisdiction with the click of a mouse. At any time, the user can click on the locator map and the active map view will automatically zoom to that location.

The search pane is an interactive pane that allows you to manually map a location.

Map a location by typing an address or street in the search field. You can also click the drop-down arrow to scroll through a list of roads in your jurisdiction.

Additionally, this search pane is used to find features in any of your GIS map data layers which are searchable. This one search function is streamlined so users only need to go to one location to find items within their GIS map data.

Leveraging locator technology in ArcGIS you are able to create aliases which allow searches to be done within GeoLynx 9-1-1 using the search pane. For example, you can type Old City Park into the search pane which will then zoom to the point or parcel containing the attribute information. These locators can be developed for an additional fee by GeoComm's GIS department, if desired.

Call Information Pane

Important, detailed information related to the current dispatch environment including ALI, responder information, and vehicle list populate in the information pane to aid the call-taker.

This data displays automatically for an incoming call. It also displays when you select a call from the results grid.

Wireline E9-1-1 Call Plotting

GeoLynx 9-1-1 displays the most immediate and important information in an emergency call situation on one screen. When an E9-1-1 call is received, address, caller name, and responding agency data is parsed out of the ALI data stream sent from the E9-1-1 ALI controller. The map automatically searches the primary and secondary GIS data layers and then locates the address, where appropriate, in all map views with an arrow and the caller and responder information panels populate. The active call location symbol also displays in the locator map.

GeoLynx 9-1-1 taps directly to the ANI/ALI controller by way of a serial connection on the Computer-Aided Dispatch (CAD) port, via the IP network, or software API connection depending on the specific equipment present. When an E9-1-1 call is received, GeoLynx 9-1-1 accepts the ANI/ALI data stream and parses the information for name, address, and phone number (ANI and/or p/ANI as appropriate).

When the call is processed, the map display centers on the call location which is marked by a designated icon. The icon display changes when a new E9-1-1 call is received to distinguish the current call from past calls.

Wireless E9-1-1 Call Plotting

GeoLynx 9-1-1 provides configuration of different location processing methods based on class of service and provider. When a 9-1-1 call is received, GeoLynx 9-1-1 will examine the class of service and provider to determine the type of call (wireline, wireless PI, wireless PII, wireless PII with PI attributes and no PII attributes – indicating that a re-bid is required to receive x,y coordinates). Symbology is configurable by the system administrator for each class of service.

GeoLynx 9-1-1 can also list map features from any layer contained within a call's coverage area (for Wireless Phase I) or confidence interval (for Wireless Phase II).

Phase I Wireless Call

When GeoLynx 9-1-1 receives a Phase I wireless call the coverage information is received from the ALI data stream. The map of the cell sector or omni-directional coverage area displays on the map.

The map indicates the wireless caller was likely within the cell site/sector coverage area when they pressed send on their phone to dial 9-1-1.

Phase II Wireless Call

When GeoLynx 9-1-1 receives a Phase II wireless call the x,y coordinate location on the map is found from the ALI data stream for that call.

Phase II Confidence Interval / Tolerance Zone

To display the confidence interval the cell phone provides or GeoLynx 9-1-1 utilizes a distance set as a default by the system administrator. The circle defines the highest probability where the caller may be located. GeoLynx 9-1-1 can automatically and manually search the tolerance zone for closest features, such as parcel polygons, building footprints, and address points.

GeoLynx 9-1-1 Advanced Features

Advanced features in GeoLynx 9-1-1 include:

- 9-1-1 Call Aging
- Address Locators
- Routing
- Pictometry Integration
- HazMat Mapping
- Hyperlinks
- Web Map Services
- Restricted Internet Access

9-1-1 Call Aging

GeoLynx 9-1-1 can be configured to age calls by changing call icons and colors after calls reach certain age thresholds and then eventually clearing icons from the map automatically, with no user interaction. At a glance users can see the age of the call by color gradations. The maximum time the call displays is configurable. When a new call comes in, by glancing at the map the user could tell if any other calls were placed from that location or nearby locations within the past two days and also determine by the color of the icons how long ago other calls were placed. For example, the call aging is set to three days and multiple calls have been placed from a particular address within those three days. When another call comes from the same location within those three days, the telecommunicators would be able to reference that information and communicate to the emergency responder that there had been prior calls for similar issues such as a domestic.

Address Locators

GeoLynx 9-1-1 uses ESRI Locators and supports multiple locators so it can search locators for a street centerline layer, a GPS point layer, lakes layer, and other layers all at once. This is ESRI's current geocoding technology, and the manner in which GeoLynx 9-1-1 converts text such as a street address, common place name, or other features such as a hospital location, lake name, or mile markers into mappable x,y coordinates. Essentially, anything you can search for can be typed into the search tool and be potentially located. This one search function is streamlined so users only need to go to one location to find items in their GIS map data. The advantage of this method of searching is that it is very fast and supports searches for similarly spelled words – so even if there is a misspelling in a street name or other location name, it can still be found.

Routing

GeoLynx 9-1-1 generates routes between two locations on the map and will depict the path to follow.

Advanced GeoLynx 9-1-1 routing features include:

- routes around restricted areas and barriers
- multiple stop routing
- drag and drop
- quick one button route finders for use when mapping a 9-1-1 call or CAD incident
- "contraflow" – route in the wrong direction down one-way lanes
- computes drive time polygons (isochrones)
- searches map features (such as addresses and buildings) along a route or drive time polygon.

GIS routing functionality is related to the connectivity and attributes associated with the map data. The accuracy of a routing inquiry correlates to the accuracy of the map data. However, in certain situations, user interpretation may be needed to determine necessary route variations based on real world situations. Additional fields and consideration needs to be taken for implementing routing functionality.

Restricted Areas/Barriers Routing

GeoLynx 9-1-1 routes around restricted areas and barriers. Users can draw barriers and restricted areas on the map. For example, a user can add a barrier to the map displaying a flooded road, GeoLynx 9-1-1 will automatically propagate the barrier information to all computers on the GeoLynx 9-1-1 system so the barriers will be displayed and factored into routing requests at all workstations.

Multiple Stop Routing

GeoLynx 9-1-1 supports multiple stop routing. For example, if units are assigned to make stops at multiple locations of equal priority, GeoLynx 9-1-1 can compute the best route to take in order to visit all stops in the least amount of drive time.

Drag and Drop Routing

A user can click on a location on the map, such as a call location, vehicle, CAD incident, etc., and drag and drop it into the routing panel to be included in a route computation.

One Button Route Finders

One button route finders can be used after mapping a 9-1-1 call. By clicking the route police button, GeoLynx 9-1-1 will determine the correct police department based on the Emergency Service Zone (ESZ) of the call and automatically compute a route from that location.

Contraflow

Routing in the wrong direction down one-way lanes is typically used during evacuations. For example, it can be used to open all eight lanes of an expressway for traffic to flow away from a hazard, such as the coast during a hurricane.

Drive Time Polygons (isochrones)

GeoLynx 9-1-1 drive time polygons depict on the map the distance you can drive in any direction from a particular point in a given amount of time. This feature is useful to see how far an emergency response vehicle can travel from a particular location in a set amount of time or to see how far any vehicle could travel in any direction from the site of a reported 9-1-1 incident in a set amount of time.

Search Route or Drive Time Polygon

Using the routing functionality, within GeoLynx 9-1-1, users can search map features along a route or within a drive time polygon. This is useful for emergency notifications. For example, a targeted notification can be sent out via telephone to all buildings inside a 30 minute drive time polygon from an incident location. Emergency notifications require the GeoLynx 9-1-1 ENS add-on module.

Pictometry Integration

Integration of Pictometry in GeoLynx 9-1-1 offers additional location display functionality. The ease-of-use in uniting these solutions allows telecommunicators and emergency responders to instantly know vital details of incidents in progress. With the Pictometry image integrated into a map view it is accessible by telecommunicators to measure heights of buildings, turn pictures, view locations of doors and windows, etc. for the most advantageous view of incident locations from the PSAP.

GeoLynx 9-1-1 makes the call location data available for Pictometry to automatically input into their system. The data pulled by Pictometry from GeoLynx 9-1-1 then displays the 3D images available in Pictometry.

HazMat Mapping

With GeoLynx 9-1-1, emergency responders can more effectively and quickly manage a hazardous materials (HAZMAT) incident.

The HazMat feature provides a means for displaying, in the map views, a geographic model (plume) of a chemical incident. Spatial selection of addresses provides flexibility in locating multiple locations for large scale emergency situations, such as chemical spills.

Chemical plume modeling allows users to create geographic models by:

- Manually entering variables related to the specific incident
- Loading Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files
- Utilizing the Emergency Response Guidebook (ERG) digitally embedded in GeoLynx 9-1-1

Manual Chemical Plume

A manual chemical plume can be created by simply entering information into the chemical plume tool. Information related to the specific incident such as wind direction, wind speed, elapsed time since the chemical incident, and the known diffusion rates for various types of chemical agents can be obtained from available resources such as the local weather station.

Once this information is entered and the map is selected at the location of the chemical spill the chemical plume modeler creates two zones reflecting areas of higher and lower concentration of hazardous chemicals:

- The initial isolation zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material.
- The protective action zone defines an area downwind from the incident in which persons may become incapacitated and unable to take protective action and/or incur serious health effects.

Aerial Locations of Hazardous Atmospheres (ALOHA)

GeoLynx 9-1-1 Chemical Plume modeler has the ability to accept Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files. ALOHA was developed by the Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention Office (CEPPO), and the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration. It was developed for individuals responding to chemical accidents to predict the rates of dispersion of specified chemicals based on climatic conditions and other variables involved in a chemical spill.

This program allows users to develop a footprint showing the concentration areas that pose a threat to human life. These footprints can be imported and displayed within GeoLynx 9-1-1.

Emergency Response Guidebook

GeoLynx 9-1-1 now has an additional tool for mapping hazardous materials: the Emergency Response Guidebook (ERG).

The ERG was developed jointly by the United States Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in:

- quickly identifying the specific or generic classification of the material(s) involved in the incident, and
- protecting themselves and the general public during this initial response phase of the incident.

Where once a user had to manually use the paper book to look up a chemical or placard number and determine the response and isolation protocols, GeoLynx 9-1-1 now automates this. A user needs to only type part of a chemical name, and the search will auto complete as they type. They may also type in a placard number if it is known. GeoLynx 9-1-1 takes this one step further, and maps the isolation protocols so they can be visualized and used as selection polygons for GeoLynx 9-1-1 ENS, if configured, for making mass outbound notifications.

A table included in the ERG lists, by ID number, Toxic Inhalation Hazard (TIH) materials and provides two different types of recommended safe distances: initial isolation distances and protective action distances. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase with time.

When the hazardous material is selected a user can also view the details in the ERG data window. The data window displays the potential hazards, public safety, and emergency response information for the selected material.

After creating the plume zones, a user can search for map features, such as streets or address points, within the plume. This information is stored in the results grid and can be printed, e-mailed, faxed, or saved.

Hyperlinks

The hyperlink feature, using inherent ESRI technology in GeoLynx 9-1-1, allows a single image or multiple images to be associated with a geographic location. The database of images is queried automatically in response to the receipt of a 9-1-1 call or manual address look-up. In an emergency scenario in a location such as a school, golf course, stadium, or campus the hyperlink feature gives emergency response personnel fax access to images such as digital property images, blueprints, CAD drawings, text documents, PDF files, or models linked to a geographic location or address for a visual reference.

Hyperlinks can be any of following three types.

- A document – the file specified for that feature in the selected hyperlink field is launched using the application with which that file type is currently associated.
- The Web page (URL) specified for that feature in the selected hyperlink field is launched in the default Web browser.
- Macro - When a feature is clicked with the Hyperlinks tool, the value specified for that feature in the selected hyperlink field is sent to the macro specified.

Web Map Services

GeoLynx 9-1-1 supports ArcIMS map services, ArcGIS Server map services, and Open GIS Consortium Web Map Services (OGC WMS). One example of these is ESRI's BETA product, ArcGIS Online, which is supported by GeoLynx 9-1-1. It adds nationwide coverage of aerial imagery (1 to 3 meter resolution), scanned USGS topographic maps for the entire US, and TeleAtlas street centerline data all at no charge for GeoComm ArcGIS engine users. This data is accessed from the Internet.

There are many free and subscription based Web map services that GeoLynx 9-1-1 can consume directly. For example, the Geography Network is a global network of geographic information users and providers. It provides the infrastructure needed to support the sharing of geographic information among data providers, service providers, and users around the world. Through the Geography Network, GeoLynx 9-1-1 can access many types of live dynamic maps such as natural hazards like earthquakes, tsunamis, and volcanoes, and other types of hazards detected using the US Defense Meteorological Satellite including fires, floods, hurricanes, and cyclones. ESRI ArcWeb Services also provides fee Web-based map services that GeoLynx 9-1-1 can directly display, including weather data from providers such as Meteorlogix.

Restricted Internet Access

GeoLynx 9-1-1 has built in restricted internet access. The System Administrator can limit Website access to specific sites such as news sites, weather data or HTML pages stored on a local workstation or LAN.

GeoLynx 9-1-1 Essential Features

Essential features in GeoLynx 9-1-1 include:

- Map Views
- Map View Extent

- Map Layers
- Map Tips
- Tool Tips
- GeoLynx 9-1-1 Shortcut Menu
- Print, E-mail, Fax, and Save
- AutoSend
- Issues
- Configurable Login

Map Views

GeoLynx 9-1-1 displays up to three map views within the main map window. Each map pane can display unique sets of map data layers and can assume different properties when displaying address locations.

For example, upon the receipt of a 9-1-1 call, one map pane can be configured to zoom to the extent of the city from which the 9-1-1 call was placed, while another map pane can be configured to zoom in closely on the call. Still another map pane can be configured to display an aerial image view of the location.

The views pane on the left side of the screen allows you to quickly navigate to pre-configured views, such as cities, townships, parks, and other public areas.

Each map view can be manipulated by the call-taker and then returned to the system administrator-set default. Additionally, the user can change the order of the views in the views pane, add new views, change views, and remove views.

When a map view is active, a user can perform functions such as zoom in, zoom out, or pan. Additionally, active map views can easily be resized or hidden simply by clicking and dragging the edge to the desired size.

Clone map view and re-center are additional tools used to customize the map view available with a right click of the mouse. At any time you can copy the view of the active map and display that same view in all other map views or re-center a map view by clicking anywhere within it.

Map View Extent

The full extent tool enables a user to automatically zoom to the extent of the entire map.

The previous map view tool offers an opportunity for users to effortlessly change their map view back to the original view after a recent change. Similar to the “back” button on Internet Explorer, GeoLynx 9-1-1 is capable of storing up to five recent views for any map displayed in the main screen of GeoLynx 9-1-1.

The go to next extent tool enables users to move forward one map view to a previously displayed map view.

Map Layers

The layers pane lists the layers that display in the map views and shows the symbols used to represent the features in each layer. This feature inherent in GeoLynx 9-1-1 allows users to view only the layers that they desire.

The layer list control drop-down menu is also available to easily select a layer to be active.

Map Tips

Map tips display selected information from the map data when the mouse pointer hovers over a map feature. The translucent background allows you to see the map behind the tip.

System administrators configure what information displays in the tip. The GeoLynx 9-1-1 map tip has the ability to pull information from multiple map layers and can have a text identifier in front of each row of information.

Tool Tips

A tool tip is a small text box that displays when your pointer hovers over a tool in the map tools toolbar. It displays the tool's name for quick and easy reference by GeoLynx 9-1-1 users.

GeoLynx 9-1-1 Shortcut Menu

Right-click anywhere in a map view to display the GeoLynx 9-1-1 shortcut menu. This shortcut menu provides quick access to many of the most frequently used GeoLynx 9-1-1 features and functions.

Print, E-mail, Fax, and Save

You can print the active map view to a local or network printer, e-mail the active map view, fax the active map view, or save the active map view as a .jpg image.

The print function offers the ability for users to adjust the page orientation, number of pages, and zoom level.

GeoLynx 9-1-1 has the ability to attach a map as a .jpg to an e-mail. This is especially useful if you and your GIS support are in different locations.

By simply clicking the fax button a map of or any other item displaying can be faxed.

Additionally, GeoLynx 9-1-1 has the ability to export a map as a .jpg file and save it to a location on the hard drive or external memory device such as a CD, DVD, or flash drive.

AutoSend

GeoLynx 9-1-1 offers the ability to automatically send a map view by fax, fax server, e-mail, or remote printer to previously designated numbers, addresses, or printers.

The system administrator can store up to eight fax numbers, e-mail addresses, or remote printers per ESN for law, fire, EMS, and other emergency responders. This allows you to automatically send a one-page copy of the current map view, locator map view, a north arrow, user-entered information, ALI data from the call, and sender identification information to the responding agency(ies).

In addition to emergency responders the system administrator can setup a destination list to include contacts such as animal control and power companies

Issues

GeoLynx 9-1-1 contains an issues feature which allows users to log ANI/ALI and GIS issues in a report and either fax, e-mail, print, or save the report.

Using the map issues function users can display the current map view and map coordinates. By adding comments and additional information corrections to the GIS map data can be specified to send to the GIS personnel maintaining the data.

Using the ANI/ALI issues function users can display the current ALI information and then specify any corrections, along with a classification for the error type and any additional comments. ANI/ALI issues can be logged such as misrouted calls or calls with incorrect ALI.

Configurable Login

GeoLynx 9-1-1 has administrator, group, and individual user access levels. The system administrator can configure the different user rights, privileges, and preferences for each individual user or group of users and create passwords for user log on. The administrator is able to establish rights and privileges for a default group to bypass the need for individual or group user logon.

GeoLynx 9-1-1 Essential Tools

Tools in GeoLynx 9-1-1 include:

- Go to XY
- Flicker Layer
- Swipe Layer
- Transparency
- Zoom
- Pan
- Identify
- Measure
- Markups

Go to XY

The Go to XY tool allows the user to manually type longitude and latitude coordinates to find a longitude and latitude location on the map. It allows you to enter any format of units including: meters, decimal degrees, degrees minutes seconds, degrees decimal minutes, MGRS, and U.S. National Grid.

Entering the longitude and latitude coordinates maps emergency locations in the event a caller has a GPS coordinate, but no street address information in the E9-1-1 call's ALI (e.g. hunter in the middle of the woods, fisherman on a river, or a utility crew on an unknown street).

Flicker Layer

The Flicker Layer tool gives the user the ability to flash the layer selected from the layer list control.

This allows the user to reveal what is underneath a selected layer by flickering it on and off. This is particularly useful with aerial images and analysis where you want to see the difference between layers.

Swipe Layer

The Swipe Layer tool gives the user the ability to interactively reveal layers beneath the layer being swiped. This tool makes it easy to see what is underneath a particular layer without having to turn it off.

Transparency

The Transparency tool gives the user the ability to adjust the opacity of a layer. Adding transparency to the top layers in your map allows you to see them while still viewing underlying layers.

Zoom

The Continuous Zoom/Pan tool gives the user the ability to smoothly zoom in or out of the map window using cursor and mouse.

The Zoom In tool gives the user the ability to click drag or just click on the map to zoom in to display a desired area.

The Zoom Out tool gives the user the ability to click drag or just click on the map to zoom out to display a desired area.

Additionally users are able to set the map scale using the Zoom Control. By typing in a value or selecting a preset value from the list the map scale in the active map view will change automatically.

Pan

The Pan tool allows users to change the view of a map by dragging the map with the pointer.

Identify

The Identify tool assists with identifying features on the map. It displays information from all map layers on the point clicked on the map. It can be used to identify unlabeled map features such as lakes, rivers, parks, etc. It can also be used to determine emergency responders for any point in question.

Measure

The Measure tool allows users to measure distances from point A to point B and to calculate cumulative distance from point to point to point and beyond. Distances can be displayed in multiple formats (e.g. feet, miles, and meters).

Markups

GeoLynx 9-1-1 has a number of drawing tools that allow users to mark closed roads, accident sites, special features, or anything else you wish to indicate on the map. Additionally, a predefined burn symbol is available to mark controlled burn locations or burn permits on the map.

Markups can be added to any map view. Once drawn, markups display in all map views. Any markups placed on map views are temporary; they are drawn on a tracking layer which does not affect other functions of your map. Markups can be selected and removed one at a time or all at once

and can be shared among users. Users can select from a variety of preset styles and colors for points, lines, polygons, and circles. Notes can be added to label the symbol on the map. If desired, the symbol can be selected as traffic block if routing calculations should adjust for a traffic barrier.

GeoLynx AVL System Description

GeoLynx AVL enables vehicle tracking functionality in GeoLynx 9-1-1. As an add-on module, GeoLynx AVL uses GPS technology to display incidents and equipped responding vehicles in "real-time" on your existing GeoLynx 9-1-1 map. This way, all information needed to dispatch the responder closest to an incident along the shortest route is at your fingertips.

While operating, GeoLynx AVL records the locations, routes, stops, duration of activity, and status of all emergency response vehicles. This allows for after-the-fact reconstruction of a unit's activity, movement, and routes for a defined period.

Specific Functionality

Vehicles display as unique icons on the GeoLynx 9-1-1/ AVL map. Icons can be vehicle pictures chosen from a set of stock symbols or any font symbol installed on your computer. AVL functions are accessed from the AVL Controls dialog box.

Vehicle Selector	Lists vehicles installed in the AVL network
Icons	Allows setup of vehicle icons for different vehicle status types
Vehicle	Displays the current vehicle chosen from the Vehicle Selector
Commands	Displays vehicle tracking control options
Clear Map Button	Removes all vehicles from the map
AVL Data Log Button	Opens the AVL Log Playback dialog box
Mobile Data Button	Opens the Transmit Message dialog box
Exit Button	Closes the AVL Control panel and returns to the map

Vehicle icons are easily changed by the system administrator. The administrator simply selects a vehicle from the vehicle selector list and assigns an icon.

The tracked vehicles are then capable of reporting back to their location and status at the time a location update is delivered. Statuses vary per your specifications and typically are:

Status 1: Normal Mode
Status 2: Emergency Mode: emergency lights on
Status 3: Poll Mode: vehicle location queried
Status 4: Undefined

You are able to send vehicle commands to the icons. This way you can maintain the current status of all tracked vehicles. These statuses include pursuit mode, emergency mode, and normal mode. You can also find the current position of any tracked vehicle and can hide any vehicle icons.

You may select any vehicle to follow on the map. When you follow a specific vehicle, such as one in a chase, the map will continuously center on the selected vehicle's position until the option is disabled.

The AVL Data Log is a useful tool for planning, analysis, and litigation. All vehicle tracking data is recorded in a log for after-the-fact replay.

GeoLynx AVL reads the AVL log sequentially one database per second. This is the fastest playback rate in the industry. For a slower playback, a user can adjust the pause between database records to be between 1-20 seconds.

In addition to the on-screen AVL Log playback, a paper report can be generated.

GeoLynx AVL allows the transmission of text messages between the dispatch center and AVL units. Senders and receivers of these messages must be equipped with a connection via a wireless network for this to function.

GeoLynx Mobile System Description

Providing the maximum amount of information to those who need it most…the *GeoLynx Mobile* mobile response GIS system provides a mapping tool to emergency responders. GeoLynx Mobile is perfectly suited for your mobile environment with screen tinting options for varying lighting environments to match your personal preference. GeoLynx Mobile is a mobile version of GeoLynx 9-1-1 mapping software designed for in-the-field mapping.

Supported Formats

GeoLynx Mobile is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI file geodatabase
- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefile

In addition, services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx Mobile.

System Architecture

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations.

Because GeoComm is an ESRI business partner, we are able to provide the latest version of GeoLynx Mobile mobile response GIS. GeoLynx Mobile uses ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to responder vehicles.

GeoComm recognizes the need for the most current technology to be implemented to ensure the software is maintained and supported for years to come. The ArcGIS framework is the most current and future technology platform from ESRI.

GeoLynx Mobile is also built on the Microsoft .NET framework. This is Microsoft's current and future platform and it is ensured to work with the new Microsoft technology, such as Windows Vista.

Additionally, advanced, scalable Database Management System (DBMS) technology is used in the GeoLynx Family of Products for storing data and configuration settings. Benefits of using SQL server include significantly increased performance capacity for both AVL and CAD. For example, for AVL, Microsoft SQL server allows 100, 1,000, and more units to be moved on the map in a single transaction unlike other DBMS technology which move units individually on a map during a transaction. This same efficiency extends to CAD calls for service.

User Interface (UI) Appearance

The UI is simplified but strongly engineered to include much of the functionality right on the main screen. The UI resembles some common consumer grade in-vehicle navigation applications but is focused for public safety use.

User Interface (UI) Form Factor

Screen display resolutions are typically smaller in mobile data computers and vehicular PCs than for GeoLynx 9-1-1 workstations. The UI is designed for a minimum resolution of 800 x 480, the typical resolution for Ultra Mobile PC (UMPC), a new class of computing devices that are emerging – handheld computers that run full blown Microsoft Windows.

Developed for Touch Screen

Touch screen buttons scroll along the bottom of the user interface to provide quick access to typical mapping functionality and more advanced uses such as the Emergency Response Guide (ERG).

When functions are activated a display box pops up along the left side of the user interface.

In addition, the overview map in the top right corner can be easily turned on or off.

Turn By Turn Driving Directions

When a route is computed or the user enters a destination, GeoLynx Mobile displays turn-by-turn driving directions which are typical of consumer grade in vehicle navigation applications. For example, as you are driving, GeoLynx Mobile will show that a left turn is coming up in 174 feet.

GeoLynx Mobile automatically computes routes including routing around barriers.

Get Directions

GeoLynx Mobile allows you to “Get Directions” similar to online map services such as Google maps.

HazMat Mapping

With GeoLynx Mobile, emergency responders can more effectively and quickly manage a hazardous materials (HazMat) incident.

The HazMat feature provides a means for displaying, in the map views, a geographic model (plume) of a chemical incident. Spatial selection of addresses provides flexibility in locating multiple locations for large scale emergency situations, such as chemical spills.

Chemical plume modeling allows users to create geographic models by:

- Manually entering variables related to the specific incident
- Loading Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files
- Utilizing the ERG digitally embedded in GeoLynx Mobile

Manual Chemical Plume

A manual chemical plume can be created by simply entering information into the chemical plume tool. Information related to the specific incident such as wind direction, wind speed, elapsed time since the chemical incident, and the known diffusion rates for various types of chemical agents can be obtained from available resources such as the local weather station.

Once this information is entered and the map is selected at the location of the chemical spill the chemical plume modeler creates two zones reflecting areas of higher and lower concentration of hazardous chemicals:

- The initial isolation zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material.
- The protective action zone defines an area downwind from the incident in which persons may become incapacitated and unable to take protective action and/or incur serious health effects.

Aerial Locations of Hazardous Atmospheres (ALOHA)

GeoLynx Mobile Chemical Plume modeler has the ability to accept Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files. ALOHA was developed by the Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention Office (CEPPO), and the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration. It was developed for individuals responding to chemical accidents to predict the rates of dispersion of specified chemicals based on climatic conditions and other variables involved in a chemical spill.

This program allows users to develop a footprint showing the concentration areas that pose a threat to human life. These footprints can be imported and displayed within GeoLynx 9-1-1.

Emergency Response Guidebook

GeoLynx Mobile now has an additional tool for mapping hazardous materials, the ERG.

The ERG was developed jointly by the United States Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in:

- Quickly identifying the specific or generic classification of the material(s) involved in the incident, and
- Protecting themselves and the general public during this initial response phase of the incident.

Where once a user had to manually use the paper book to look up a chemical or placard number and determine the response and isolation protocols, GeoLynx Mobile now automates this. A user needs to only type part of a chemical name, and the search will auto complete as they type. They may also type in a placard number if it is known.

A table included in the ERG lists, by ID number, Toxic Inhalation Hazard (TIH) materials and provides two different types of recommended safe distances: initial isolation distances and

protective action distances. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase with time.

When the hazardous material is selected a user can also view the details in the ERG data window. The data window displays the potential hazards, public safety, and emergency response information for the selected material.

After creating the plume zones, a user can search for map features, such as streets or address points, within the plume. This information is stored in the results grid and can be printed, e-mailed, faxed, or saved.

Shared Markups

GeoLynx Mobile creates a Common Operating Picture (COP) by allowing users to markup the map and then shares those markups, such as a current wild fire zone, with other users. Any markups placed on map views are temporary; they are drawn on a tracking layer which does not affect other functions of your map. Markups can be selected and removed one at a time or all at once and can be shared among users. Users can select from a variety of preset styles and colors for points, lines, polygons, and circles. Notes can be added to label the symbol on the map. If desired, the symbol can be selected as traffic block if routing calculations should adjust for a traffic barrier.

Hyperlinks

The hyperlink feature, using inherent ESRI technology in GeoLynx Mobile, allows a single image or multiple images to be associated with a geographic location. The database of images is queried automatically in response to the receipt of a 9-1-1 call or manual address look-up. In an emergency scenario in a location such as a school, golf course, stadium, or campus the hyperlink feature gives emergency response personnel fax access to images such as digital property images, blueprints, CAD drawings, text documents, PDF files, or models linked to a geographic location or address for a visual reference.

Hot Keys

Hotkeys can be configured in GeoLynx Mobile for fast access to frequently used features truly optimizing it for in-vehicle use.

Pictometry

Pictometry, if available, can be viewed in a separate window.

GeoLynx EOC System Description

There is a crisis…you need to act quickly…time is everything. With a GeoLynx EOC emergency operations center you have a Web-based “command center” on your computer with vital information required to make decisions confidently and quickly.

GeoLynx EOC’s interoperable technology foundation is Web-based GIS, which is proven a vital component for critical situational awareness by displaying massive amounts of location-based information in a simple graphical format. GeoLynx EOC brings all this crucial data together and lets you communicate and control any emergency from anywhere there is a Web browser that can reach GeoLynx EOC…at home, in your office, on your laptop in your vehicle, in a conference room, in many locations across your jurisdiction or across the country.

GeoLynx EOC creates a Common Operating Picture (COP) to gather and share information, strategize, plan, manage, track, and respond to any emergency. System users can see shared user drawn annotations, HazMat isolation protocols, and network cameras. Users can also share 9-1-1 call locations, CAD calls for services, and real-time vehicle locations. In addition, it can display configured public and private Web services such as weather data or fire maps all within the context of online GIS. GeoLynx EOC seamlessly integrates into ArcGIS server enterprises everywhere, bringing the GIS industry's most powerful Web cartographic and spatial analytics to the public safety industry.

GeoLynx EOC helps you intelligently manage emergency operations. It is a multi-user collaborative Web application providing secure access to:

- GIS with layers vital to public safety, homeland security, and municipal operations
- Emergency service zones for law, fire, and medical responders
- Critical infrastructure like gas, telephone, and electric facilities
- AVL - location of fire trucks, ambulances and squad cars, if configured
- Wireline and wireless E9-1-1 call locations, if configured
- CAD incidents, if configured
- Emergency Response Guidebook (ERG)
- Floor plans and 3-D visuals
- Evacuation routes
- Chemical, biological, and radiological plume modeling
- Rip-and-run map printing

All individuals involved in a crisis may access GeoLynx EOC at the same time. With GeoLynx EOC everyone is aware of the complete "lay of the land", so everyone can spatially visualize and analyze data as the events unfold and communicate immediately about decisions that potentially affect lives during every phase of an emergency.

GeoLynx EOC is designed for emergency information sharing in day-to-day use or in high-stress situations, with very little operational complexity.

The system includes access for up to ten concurrent users. Since GeoLynx EOC is a net native Web application it is easy to increase or decrease the number of concurrent users in increments of five. Expandable by subscribed users, it does not require multiple software licenses loaded on individual computers. With just an Internet or intranet connection, authorized users can interact with GeoLynx EOC. With password protection and a cascading privilege user authorization system, administrators control information accessible to individual users or groups of users. Additional users can be added for an additional fee, if desired.

We know GIS data can be costly to create and maintain and usually only benefits a few users with expensive GIS software installed on their desktops. GeoLynx EOC leverages this valuable data by making it available to many users throughout your jurisdiction. GeoLynx EOC can be used to extend a GIS enterprise to your public safety personnel, so multiple departments can benefit from dollars invested in GIS data development and software through the tiered user privileges architecture.

User Interface

GeoLynx EOC is installed on a Web server. Users access the application via a Web browser. The Web application automatically resizes to fit in the user's Web browser, displaying the maximum map size possible given the combination of panels the user has open.

The GeoLynx EOC Web page is organized into expandable and contractible panels. The user interface (UI) is a command and control (C2) style which are more like dashboards, control panels, and cockpits, unlike office automation applications where there are many menus and dialog boxes to navigate. So all needed information and functionality is on a single screen enabling users do their jobs more efficiently in high stress, high speed environments.

Supported GIS Formats

GeoLynx EOC is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefiles
- Web Map Services
- DBMS Event Tables

GeoComm services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx EOC.

System Architecture

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations, built on the most modern and advanced GIS technologies.

GeoLynx EOC is a Web application built on ESRI's ArcGIS 9.3 Server Enterprise Standard Edition and ASP.NET AJAX with VB.NET and C# code behind programmed in Visual Studio 2005. GeoLynx EOC uses a popular third party AJAX control toolkit called Telerik RAD Controls for ASP.NET AJAX to help provide a very modern Rich Internet Application (RIA), with a fluid Web 2.0 style user interface.

ArcGIS server is an essential component for critical situational awareness allowing display of massive amounts of unified location-based information in a simple graphical format. Because GeoComm is an ESRI Business Partner, we provide the ArcGIS Server technology embedded right into GeoLynx EOC, used solely for this product, bringing ESRI's industry leading technology of the ArcGIS framework to emergency response and management organizations.

GeoLynx EOC is a modern Rich Internet Application (RIA). It also uses modern technology such as Asynchronous JavaScript and XML (AJAX) to avoid time consuming page redraws and provide smooth animation and transparency of controls on the Web page.

GeoComm recognizes the need for the most current and forward-looking GIS platform technology in order to provide software that can grow and be supported for years to come. GeoLynx EOC's embedded ArcGIS Server is the most current and future GIS technology platform from ESRI.

Command Tools

The command buttons at the bottom of the Web page provide tools for users to interact with GeoLynx EOC. These tools include:

- E9-1-1 – Switches the grid view to 9-1-1 calls, if configured
- AVL – Switches the grid view to vehicle telemetry data, if configured
- CAD – Switches the grid view to current CAD calls for service, if configured
- Clear – Clears the current grid view

- Print – Send the current map view to a printer
- Sync – Displays markups added by other users to your view
- ENS – Opens the ENS module, if configured

Grid View

The grid view at the bottom of the Web page is used to display tabular data in GeoLynx EOC. Information displayed in the grid view may include:

- Address search results
- Vehicle information, if configured
- Current 9-1-1 call data, if configured
- Current CAD call data, if configured
- Spatial selection results, such as buildings inside an isolation protocol

Web Services

GeoLynx EOC has the ability to read and display data from online sources, including WMS, KML, ArcGIS Server Map Services, ArcGIS Server Geodata Services, and GeoRSS (simple and GML) One example of these is ESRI's BETA product, ArcGIS Online, which is supported by GeoLynx EOC. It adds nationwide coverage of aerial imagery (1 to 3 meter resolution), scanned USGS topographic maps for the entire country, and TeleAtlas street centerline data all at no charge for GeoComm ArcGIS server users.

There are many free and subscription based Web map services that GeoLynx EOC can consume directly. For example, the Geography Network is a global network of geographic information users and providers. It provides the infrastructure needed to support sharing geographic information among data providers, service providers, and users around the world. Through the Geography Network, GeoLynx EOC can access many types of live dynamic maps such as natural hazards like earthquakes, tsunamis, and volcanoes, and other types of hazards detected by the US Defense Meteorological Satellite. ESRI's ArcWeb Services also provide fee-based Web services that GeoLynx EOC can display such as weather data from a commercial Web service provider.

Hyperlinks

The hyperlink feature, using inherent ESRI technology in GeoLynx EOC, allows a single image or multiple images to be associated with a geographic location. The database of images is queried in response to the receipt of a geographic feature search. In an emergency scenario at a location such as a school, golf course, stadium, or campus, the hyperlink feature gives emergency response personnel access to images such as digital property images, blueprints, CAD drawings, text documents, PDF files, or models linked to a geographic location or address for visual reference.

Hyperlinks can be any of following three types.

- A document or image file – the file specified for that feature in the selected hyperlink field is launched using the application with which that file type is currently associated.
- The Web page (URL) specified for that feature in the selected hyperlink field is launched in the default Web browser. An example is Web cam URLs.
- Macro - When a feature is clicked with the Hyperlinks tool, the value specified for that feature in the selected hyperlink field is sent to the macro specified.

Pictometry Integration

GeoLynx EOC makes location data available to Pictometry to automatically input into their system. The data pulled by Pictometry from GeoLynx EOC then displays the 3D images available in Pictometry. Pictometry integration in GeoLynx EOC offers additional location display functionality. A benefit in uniting these solutions is it gives telecommunicators and emergency responders instant emergency location details. With Pictometry integration in a map view it is accessible by telecommunicators to measure heights of buildings, rotate pictures, view locations of doors and windows, etc. for the most advantageous view of incident locations from the PSAP.

Feature Panels and Tools

The left side of the Web page contains tabs users can select to alternate between feature panels including:

- Views
- Markups
- HazMat
- Table of Contents
- Stats

In addition, GeoLynx EOC contains a number of additional easily accessible tools intended for simple interaction with the map including:

- Map Toolbar
- Locator Map
- Dynamic Pan and Zoom
- Scale Bar

Views

The views panel shows saved thumbnail views users can select and easily zoom to an area on the map such as a city, township, or public place.

Markups

The markups panel provides a number of drawing tools used to mark temporary annotations on the map such as closed roads, accident site, and special features. Users can add points, lines, polygons, and text to the map.

Markups drawn by users can be shared with other authorized users. When a markup is no longer needed, it can be easily cleared from the map. Markups are a key tool for creating a common operational picture for all users of the system (e.g. to mark changing boundaries of a critical event such as a chemical spill, fire, or other disaster).

HazMat

The HazMat panel has tools for mapping hazardous materials incidents. Using this feature Emergency responders more effectively and quickly manage hazardous materials (HazMat) incidents.

The HazMat feature provides a means for displaying a geographic model (plume) of a chemical incident. Spatial selection of addresses provides flexibility in locating multiple locations for large scale emergencies.

Manual Chemical Plume

A manual chemical plume can be created by simply entering information into the chemical plume tool. Information related to the specific incident can be obtained from available resources such as the local weather station. This information may include:

- wind direction
- wind speed
- elapsed time since the chemical incident
- chemical diffusion rates

The chemical plume modeler creates two zones reflecting areas of higher and lower concentration of hazardous chemicals.

The two zones include:

- The initial isolation zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material.
- The protective action zone defines an area downwind from the incident in which persons may become incapacitated and unable to take protective action or incur serious health effects.

Aerial Locations of Hazardous Atmospheres (ALOHA)

The chemical plume modeler has the ability to accept Aerial Locations of Hazardous Atmospheres (ALOHA) footprint files. ALOHA was developed by the Environmental Protection Agency (EPA), Chemical Emergency Preparedness and Prevention Office (CEPPO), and the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration. It was developed for individuals responding to chemical accidents to predict the rates of dispersion of specified chemicals based on climatic conditions and other variables involved in a chemical spill.

This program allows users to develop a footprint showing the concentration areas that pose a threat to human life. These footprints can be imported and displayed within GeoLynx EOC.

Emergency Response Guidebook

GeoLynx EOC has an additional tool for mapping hazardous materials: the Emergency Response Guidebook (ERG). The ERG was developed jointly by the United States Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico (SCT) for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material. It is primarily a guide to aid first responders in quickly identifying specific or generic classifications of material(s) involved in an incident and protecting themselves and the public during the initial response phase of the incident.

Where once a user had to manually use the paper book to look up a chemical or placard number and determine the response and isolation protocols, GeoLynx EOC now automates this. A user needs to only type part of a chemical name, and the search will auto complete as they type. They may also type in a placard number if it is known. GeoLynx EOC takes this one step further, and maps the isolation protocols so they can be visualized and used as selection polygons for GeoLynx EOC ENS, for making mass outbound notifications.

A table included in the ERG lists, by ID number, Toxic Inhalation Hazard (TIH) materials and provides two different types of recommended safe distances: initial isolation distances and protective action distances. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase with time.

When the hazardous material is selected a user can also view the details in the ERG data window. The data window displays the potential hazards, public safety, and emergency response information for the selected material.

After creating the plume zones, a user can search for map features, such as streets or address points, within the plume. This information is stored in the results grid and can be printed, e-mailed, faxed, or saved.

Table of Contents

The table of contents panel contains a list of GIS data layers available to view on the map, along with a visual depiction of symbology for feature types in the layers. It acts as a legend for the map and allows users to toggle layers on and off as desired.

Stats

GeoLynx Stats is an add-on module to GeoLynx EOC that enables crime mapping and geospatial analysis, graphing, and report generation, from data queried from a Computer Aided Dispatch (CAD) system. This module can be added for an additional fee, if desired.

Map Toolbar

Users can easily interact with the map using navigation tools such as zoom in, zoom out, pan, and full extent which are found on the map tools toolbar in the upper right corner of the GeoLynx EOC window. Because GeoLynx EOC is built on ESRI's ArcGIS Server these tools resemble those found in other ESRI products such as ArcView.

Zoom In – allows users to click drag or click on the map to zoom in to display a desired area.

Zoom Out – allows users to click drag or click on the map to zoom out to display a desired area.

Pan – allows users to change the view of a map by dragging it with the pointer.

Zoom to Full Extent – allows users to zoom to the full extent of the map view.

Locator View Toggle On/Off – allows users to turn on and off the locator map.

Identify – assists with identifying features on the map.

Measure – allows users to measure distances from one point to another to calculate cumulative distance from point to point to point and beyond.

Pictometry Tool – allows users to click a spot on the map to see the Pictometry imagery associated with the selected geographic feature, if available.

Previous View – allows users to change their map view back to the original view after a recent change. Similar to the "back" button on Internet Explorer, GeoLynx EOC is capable of storing up to five recent views for any map displayed on the GeoLynx EOC screen.

Next View – allows users to move forward one map view to a previously displayed map view.

HazMat Placement Tool – allows users to compute a chemical cloud footprint using ALOHA or using the ERG to determine a geographic isolation protocol, and then click on the map at the point of the hazardous materials release to develop the plume

Locator

The locator map is an overview of the full extent of the current map.

The locator map contains a red rectangle indicating the extent of the main map view. The user may drag and resize this red rectangle interactively to change the extent of the main map view. The locator map and rectangle are also useful to give the user instant context about where in the jurisdiction the current main map view is zoomed to.

Dynamic Pan and Zoom

In the upper left corner of the map are dynamic pan and zoom controls. By clicking any of the arrows in the dynamic pan tool the map moves one preset increment to the direction selected. By selecting the + or – on the dynamic zoom tool the map either zooms in or out by one preset increment. The user can also drag the zoom bar up or down to zoom the map in or out.

Scale Bar

In the upper left corner of the map is a scale bar. This enables users to determine the approximate actual distance on the map.

Searching

In GeoLynx EOC users can search for street addresses, common place names, intersections, and longitude/latitude coordinates on the map. The search panel includes an auto-complete feature to assist the user when typing in a location to search for.

GeoLynx EOC uses ESRI Locators and supports multiple locators so users can search layers containing features such as street centerlines, GPS points, and lakes all at once. This is ESRI's current geocoding technology and the manner in which GeoLynx EOC converts text such as a street address, common place name, or other features such as a hospital location, lake name, or mile markers into mappable x,y coordinates. Essentially, anything you can search for can be typed into the search tool and be potentially located. This one search function is streamlined so users only need to go to one location to find items in their GIS data. The advantage of this method of searching is that it is fast and supports searches for similarly spelled words – so even if there is a misspelling in a street name or other location name, it is still found.

Pre-Installation Coordination

Before installation, Implementation Specialists will work with you to assure all hardware is available. Pre-installation conference calls and a project timeline will be outlined in the project plan and reviewed periodically for accuracy.

GeoComm Client Services personnel will work with you to ensure that project requirements are understood and clarified. Conference calls will be made to review installation, hardware, software, and configurations. A Microsoft Visio® diagram will be developed and sent to you to review and to aid in overall project understanding.

The following steps will take place prior to installation and training of the software:

- Map Data, 9-1-1 Database, and MSAG Analysis
- IP AVL Implementation
- Custom CAD Interface Development
- Dispatch GIS Setup Services
- GeoLynx EOC Setup Services

Map Data, 9-1-1 Database, and MSAG Analysis

As a company that specializes in GIS, specifically for E9-1-1 wireline and wireless call plotting, GeoComm knows the importance of accurate data. Of equal importance is the synchronization of the three primary data components related to accurately locating the origin of an E9-1-1 call: the GIS map data, 9-1-1 Database, and the Master Street Address Guide (MSAG).

For over 13 years, GeoComm has focused on increasing the accuracy and synchronization among these three components; the greater synchronization between them, the higher probability for accurately pin-pointing emergency call locations.

GeoComm will perform an analysis that will provide you with an overview of issues related to the synchronization and accuracy of the three components. Synchronization issues may be due to errors in any of the three components or a combination of all of them.

The issues will be identified by first reviewing each of the components individually and then by comparing them to one another. The following sections describe some of the processes used by GeoComm GIS Specialists to identify and then compile a report detailing synchronization and accuracy of the data.

Additionally, GeoComm will complete a synchronization review of the map data and a CAD geofile, if provided.

Reviews

Reviews will be conducted on each of the primary components to verify that information contained in each is accurate, consistent, and complete.

Map Data

During the map data review, GeoComm will review the road names and address ranges. Incorrect, incomplete, or inconsistent road names and/or address ranges in the map data may result in valid 9-1-1 addresses that do not match the map data.

GeoComm will also review the consistency of the road segments to ensure they are broken at intersections, Emergency Service Number (ESN) boundaries, and political boundaries. Errors may cause valid 9-1-1 address locations to be on the wrong side of an intersection or in the wrong ESN or political boundary.

Also, the consistency of road segment line direction will be reviewed for accuracy. Errors may cause valid 9-1-1 address locations to be on the wrong end or side of a road.

GeoComm will evaluate map data for routing capabilities if provided with documentation on overpasses/underpasses, one-way streets, and direction flow of those streets within the jurisdiction. To route correctly, GeoComm will review the road file to verify there are continuous road segments at overpasses or underpasses, ramps are digitized, segments are broken at true intersections, and segments are snapped to segments. Specific field names and attributes are required to enable the routing capabilities in GeoLynx 9-1-1, if utilized. This review will provide results to the City of Frisco of any needed updates to enable accurate routing.

Primary Search Layer

Typical map data layers used as a primary search layer include: address points, parcels, or building foot prints. GeoComm reviews this primary search layer to verify the number of duplicates and the consistency of the address information, as well as the MSAG validity of each address.

9-1-1 Database

GeoComm will review addresses and community names in the 9-1-1 database. Incorrect, incomplete, or inconsistent addresses and/or community names in the 9-1-1 database may result in 9-1-1 addresses not matching the MSAG or map data. Addresses from the 9-1-1 database must match the MSAG and map data to effectively plot wireline 9-1-1 calls.

MSAG

GeoComm will review the road names, address ranges, ESNs, and community names in the MSAG. Incorrect, incomplete, or inconsistent road names, address ranges, ESNs, and/or community names in the MSAG may result in valid 9-1-1 addresses that do not match the MSAG or map data.

GeoComm will review the MSAG for any overlaps as these could be detrimental in plotting wireline 9-1-1 calls. Although an MSAG that contains overlaps may rarely cause problems it is standard to only have one record for a given street name and range.

Synchronization

Following the reviews of each component GeoComm will perform several processes in order to evaluate the synchronization of all three components. First, the synchronization of the 9-1-1 database, MSAG, and map data will be reviewed. This will provide a list of all 9-1-1 database records that are not MSAG-valid, as well as a list of 9-1-1 database records that do not match the map data.

Second, GeoComm will evaluate the synchronization of the MSAG and map data. This synchronization review may produce a list of possible errors in the MSAG or map data. The errors may be due to MSAG records which are not represented the same in the map data.

Lastly, GeoComm will evaluate the synchronization of the CAD geofile and map data. This synchronization review may produce a list of possible errors in the MSAG or map data. The errors may be due to MSAG records which are not represented the same in the map data.

9-1-1 Database, MSAG, and Map Data

GeoComm will compare the MSAG and 9-1-1 database. This comparison may result in a list of 9-1-1 database records that are not MSAG-valid.

Following this comparison, GeoComm will geocode the address records within the 9-1-1 database to the road file. This process also compares the ESNs assigned to the 9-1-1 database addresses to verify that addresses locate within the correct boundary in the map data. Geocoding the specific records in the 9-1-1 database will denote which addresses match the map data. A list of errors will be compiled from the addresses that do match the map data. These errors could exist for a variety of reasons which will be outlined in the final report.

MSAG and Map Data

GeoComm will geocode records in the MSAG to the road file. This will be completed to provide a list of possible MSAG errors. The geocoding process also compares the ESN boundaries assigned to the MSAG addresses to verify addresses located in the correct boundary in the map data. Geocoding the low and high addresses in the MSAG denote which MSAG records match the map data. A list of errors will be compiled from the addresses that do not plot. These errors could exist for a variety of reasons which will be outlined in the final report.

Once the analysis of all components is complete the results will be compiled into a hard copy report and digital lists of the errors will be created. The hard copy report will provide you with examples of errors and possible solutions that may increase the synchronization of components. The lists of errors will allow you to review each issue individually as you are updating the three components.

CAD Geofile and Map Data

GeoComm will geocode records in the CAD geofile to the road file. This will be completed to provide a list of possible CAD geofile errors. The geocoding process also compares the ESN boundaries assigned to the CAD geofile records to verify if addresses located in the correct boundary in the map data. Geocoding the low and high addresses in the CAD geofile denote which records match the map data. A list of errors will be compiled from those that do not plot. These errors could exist for a variety of reasons which will be outlined in the final report.

Final Report

Once the analysis of all components is complete the results will be compiled into a hard copy report and digital lists of the errors will be created. The hard copy report will provide you with examples of errors and possible solutions that may increase the synchronization of components. The lists of errors will allow you to review each issue individually as you are updating the three components.

Once the report is provided GeoComm will schedule a conference call with the City of Frisco to review the report. After the conference call is complete, it is the City of Frisco's responsibility to resolve the errors. The City of Frisco may also decide to contract with GeoComm to update these components and for future maintenance services. GeoComm has extensive experience in the processes necessary to update these three components for a greater degree of accuracy and synchronization as well as the continued maintenance of all three. Initial cleanup of the map data layers may be

necessary before maintenance begins. Additional pricing can be provided for GeoComm to complete these services, if desired.

IP AVL Implementation

GeoComm Implementation Specialists will evaluate the existing wireless communications infrastructure to determine the steps, software components, and network modifications necessary to efficiently and effectively transport AVL data between the vehicles and the GeoLynx 9-1-1/AVL software in the 9-1-1 communications center. GeoComm will help identify additional required hardware or software and will assist with wireless vendors for integration of the GeoComm AVL components with the wireless network. GeoComm will:

- Analyze wired and wireless network architecture.
- Advise your technical staff on requirements to integrate wired and wireless networks to support AVL operations.
- Determine physical and logical locations of GeoComm components within the system architecture.
- Assist with activities with wireless vendors, radio vendors, and your network administration provider to support AVL operations.
- Obtain sample AVL data from your system for testing and validation.

Mobile Data Terminals, GPS Units, and Aircards

If AVL is implemented with mobile data terminals, GPS units, and aircards in the vehicles via a cellular data type network, the AVL location data would operate as follows:

- The GPS and unit ID tracking data will be sent from the GeoComm Standard IP AVL Client Interface installed in the vehicles to the GeoComm Message Switch located at the communications center via the Internet.
- The Standard IP AVL Client Interface will be configured to send GPS signal to the GeoComm Message Switch at the City of Frisco's desired rate.
- The GeoComm Message Switch can send fleet location information back to the Standard IP AVL Client Interface for viewing in GeoLynx Mobile (if installed).
- 9-1-1 ALI can be sent from GeoLynx 9-1-1 to GeoLynx Mobile (if installed) for mapping 9-1-1 calls in the vehicle.

Custom CAD Interface Development

GeoComm's GeoLynx Family of Products was developed with a robust, open Application Programming Interface (API) architecture. This means integration with any software systems is easily accomplished. The API enables connectivity to any RMS or CAD system. Because our API is a published specification available for any CAD or RMS vendor, there are no known incompatible systems.

The first step to create the interface is to provide the API specifications to the appropriate vendor. There are several vendors who have already signed such agreements with GeoComm. If the vendor creates the interface, GeoComm provides the API documentation, and the CAD vendor may charge a fee for creating the interface.

In order to implement a fully functional interface, your CAD or RMS vendor will need to provide GeoComm with interface specifications.

GeoComm is confident in our technical ability to interface GeoLynx 9-1-1 to other popular commercial CAD and RMS programs currently available. We suggest you discuss this with the CAD vendor of your choice before proceeding with an interface.

GeoLynx 9-1-1 has also been successfully interfaced to almost all CPE vendors (sites and contacts available upon request). A partial list of the equipment GeoComm has successfully interfaced GeoLynx 9-1-1 to are systems manufactured by:

- EmergiTech
- 9-1-1 Inc.
- CML
- Positron
- Informer Computer Systems
- Lucent
- Motorola
- Plant
- Tel Control Inc (TCI)
- Xtend
- Zetron

Using a standard CAD serial port from 9-1-1 CPE equipment, GeoComm can virtually guarantee the connection to 100 percent of the available standard 9-1-1 CPE equipment manufactured today - for the full integration of GeoLynx 9-1-1.

GeoLynx 9-1-1 contains an open architecture API with multiple points of entry including:

- TCP sockets
- UDP sockets
- ASCII Delimited Text
- ODBC
- DLL Interface
- XML Interface

GIS Setup Services

One of the most crucial elements in mapping 9-1-1 calls is the GIS map data. GIS map data is produced in many different formats and file structures. For any specialized software program, this format must meet certain minimum map data specifications. However, in addition to complying with those specifications, software compatibility is fundamentally the most important aspect for mapping 9-1-1 calls - so your GIS map data must be adapted to work cohesively with GeoLynx 9-1-1.

To ensure successful implementation, project management time is extensive. Our team uses years of expertise in map data development to provide you with the most effective GIS map data solutions.

GeoComm's GIS setup services include working with your GIS personnel to:

- supply minimum map data specifications for reference during the setup process and review those specifications, via a conference call, to ensure an understanding of the software needs
- advise how to establish efficient and effective means of sharing data with your GIS personnel, 9-1-1 database and MSAG information providers, and associated agencies
- consult on procedures related to map data updates and the importance of keeping data up-to-date in a 9-1-1 environment
- review the map data structure and deliver a written document outlining any required modifications to the file structure or file naming process

- make recommendations on how to make those modifications to create an acceptable format for successful integration into a dispatch center
- complete the GIS map data setup and schedule a follow-up conference call to ensure future map maintenance will incorporate in the modifications

GIS Setup Services also identifies any other map data layers you have today that may further enhance your new software. These map layers could consist of fire hydrants, mile markers, bridges or parcels.

Address Locators

Address locators are a required component of the ESRI geocoding engine used in our latest version of GeoLynx 9-1-1 to plot wireline 9-1-1 calls and search for features. Address locators define the process for searching. They allow users to find address locations and features throughout a variety of individual reference layers such as streets, parcels, address points, and bodies of water.

GeoComm will develop address locators that reside in GeoLynx 9-1-1 to correspond to the updated GIS map data layers. GeoComm will:

- Build address locators used in GeoLynx 9-1-1 for plotting wireline 9-1-1 calls when a map layer is updated
- Build address locators used in GeoLynx 9-1-1 to find map features or locations on the map when a map layer is updated
- Configure the following address locator properties to ensure continued accurate and efficient wireline call plotting:
  - Matching Option Configurations
  - Intersection Connectors
  - Output Options

GeoLynx EOC GIS Setup Services

GeoComm GIS Specialists will complete numerous steps to prepare for the installation of GeoLynx EOC so the final setup meets City of Frisco's preferences. Because GeoLynx EOC is a Web-based GIS it requires a dedicated Web server and other components to host the GIS data on a Web site. To ensure a successful implementation of GeoLynx EOC, GIS Specialists will setup the necessary components and test the GIS data display.

GeoLynx EOC GIS setup services include:

- Loading ESRI's ArcGIS Server Enterprise Standard Edition on the dedicated Web server
- Gathering GIS data the City of Frisco would like displayed in GeoLynx EOC
- Working with the City of Frisco to identify possible existing miscellaneous GIS map data layers that would enhance the GeoLynx EOC GIS data display
- Setting up a map document (.MXD) based on display preferences of the City of Frisco
- Setting up geocoding services
- Creating and publishing map services
- Testing GeoLynx EOC's GIS data display

Services for replication check in/out over Web to ArcGIS desktop clients can be provided for an additional fee, if desired.

Installation

As with all of our projects, GeoComm will follow a systematic approach to installation performed to ensure there is the least disruption to the existing, on-going operations. Installation will be done by GeoComm at the facilities designated by the City of Frisco, according to a mutually agreeable schedule.

After pre-installation elements are complete, GeoComm Implementation Specialists will travel on-site to configure and install the software.

For GeoLynx 9-1-1, while on-site the Implementation Specialist will complete the following:

- Install and configure GeoLynx 9-1-1
- Connect to and configure the ALI data
- Test wireline and wireless calls
- Complete the Acceptance Test Plan

Training

For on-site training, GeoComm will provide a combination of classroom instruction and hands-on training. The classroom presentation provides foundational information and introduces software functionality. The hands-on session concentrates on procedural based functionality.

Training will be done by GeoComm at the facilities designated by the City of Frisco, according to a mutually agreeable schedule. Agendas discussing the recommended training format and scheduling training will be reviewed during contract negotiations. A formal Gantt project schedule including training will be provided at the onset of the project.

GeoLynx 9-1-1 User Training

This is accomplished through a combination of the following:

- General Background Discussion
- Functionality Training
- Procedural Training

General Background Discussion

User training highlights the integration of GIS technology, the dispatch GIS software and the 9-1-1 industry. The training session provides the tools for understanding the call processing background required for basic troubleshooting. Some topics covered are:

- Map data layer requirements
- Working relationship with the incoming ALI data
- Function of map data
- ESN boundaries

Functionality Training

The training focuses on basic functionality and features of GeoLynx 9-1-1 and provides the dispatcher with tools needed to take advantage of the command inherent in GeoLynx 9-1-1. The training clearly explains how GeoLynx 9-1-1 will aid a call taker during a 9-1-1 call.

Specific topics covered in the functionality training portion include:

- Drag and Drop map views

- Tool functionality (locating an intersection)
- Responder vehicle drive time recommendations
- Error log reporting (ALI or GIS Discrepancy Report)
- Real-time map markup and road closures
- Wireless call location
- Dynamic vehicle routing (requires optional GeoLynx AVL module)
- Discrepancy tracking procedures
- Hazardous material mapping
- Unique features such as the digital atlas
- 2004 ERG (Emergency Response Guidebook) integration
- Measure tool (aids in determining distances)
- Map data layer requirements
- Entry of coordinates to find a location
- Map navigation (zoom, pan, and specialized tools)

Procedural Training

The procedural or scenario-based training is customized to fit the general procedures followed within each PSAP and the specific needs of the customer. These carefully designed scenarios produce optimum "hands-on" learning environment, allowing dispatchers to use the various tools available for map navigation, as well as other tools in GeoLynx 9-1-1. Trainees will obtain a basic comfort level with the software.

The training curriculum will provide call takers the ability to pull the functionality of GeoLynx 9-1-1 into scenarios that could exist during a 9-1-1 call. Some of the simulated scenarios include:

- Landline 9-1-1 call is received: enable dispatch personnel to leverage visual and text location information displayed within GeoLynx 9-1-1 to reduce emergency response time
- Manual Address lookup: GeoLynx 9-1-1 can locate address and responder information even if call is received over administrative (non-emergency) lines
- AutoSend: test wireline 9-1-1 call – send fax to the appropriate fire and medical agency assigned to the Emergency Service Number
- Error Log: wireline 9-1-1 call. The map location does not match the location confirmed by the caller; ALI information is correct, map location is not accurate – GIS Map Discrepancy Log
- Wireline 9-1-1 call that does not find a match, possible match window comes up under certain circumstances
- Creation of an issue report: map errors as well as ANI/ALI errors can be filed by dispatch personnel. This information is accessible to GIS and administrative staff and aids in the maintenance and refining of map layers and the 9-1-1 database.
- A hunter is injured and calls 9-1-1 from a cellular phone. He is able to give the coordinates of his location from his personal GPS receiver. Determine a location from DDM coordinates.
- Determining the appropriate responders to a wireless 9-1-1 call

GeoLynx 9-1-1 System Admin Training

GeoComm has learned through experience the most effective way to train an administrator is to have them attend a user session first then build on that foundation with administrator content. All our training curriculums have been designed to facilitate the acquisition of basic skills and concepts relating to the use of mapping software in the 9-1-1 call answering process.

GeoComm's system administration training is to provide a basic understanding of the functionality and ongoing maintenance of our GeoLynx 9-1-1 Dispatch GIS system. In addition, we will train system administrators on how to make adjustments to better fit the needs of the individual PSAP. This is

accomplished through a combination of background lectures with functionality and scenario based hands-on exercises. The system administration training will be broken down into four basic components:

- System Architecture
- Installation
- Configuration Options
- Maintenance Procedures

System Architecture

GeoLynx 9-1-1 is a client/server based architecture. An overview of the following will be covered:

- GeoLynx Family of Products
- GeoComm Configuration Controller
- GeoComm Message Switch
- SQL Server
- Message Queues
- Geodatabases
- Address Locators

Installation

In the event of a hardware or system failure, GeoLynx 9-1-1 will require reinstallation. Materials are left with the administrator for reinstallation. In addition, the GeoComm Implementation Specialist will train the system administrator(s) necessary processes for reinstallation and reconfiguration of the system.

Maintenance Procedures

Maintenance of map data and settings within GeoLynx 9-1-1 is required to preserve accuracy levels established during the original installation. The GeoComm Implementation Specialist will detail how to add updated map data layers into GeoLynx 9-1-1 and the corresponding settings.

Configuration Options

GeoLynx 9-1-1 includes the ability to customize a multitude of settings and configuration options. Configuration training will focus on the options available to the system administrator to accommodate the need of the individual call taker or PSAP. The configuration training will allow the administrator to develop the skill set for maintaining GeoLynx 9-1-1. GeoLynx 9-1-1 provides user-friendly configuration interface that is password protected to allow for easy manipulation of the software.

Some of the settings and configuration options covered in this course include:

- User account configurations/settings
- .mxd maintenance
- Setting zoom levels
- Map data layer requirements
- Configure system to minimize required maintenance
- Customize map data display (set the desired number of map views)
- Set ALI parsing parameters in the system – wireline and wireless
- Update and add AutoSend numbers
- Setting up hyperlinks
- Define and display tolerance zone on Phase II call
- Special feature modules

- New GeoLynx 9-1-1 server and database architecture
- GeoComm configuration controller

The system administrator(s) will be responsible for understanding how GeoLynx 9-1-1 works and what files are affected by changes within the system. The overall focus of the training will revolve around the various options available for making adjustments within the system. These options relate mainly to display options of map data in the map views at workstations and application options such as the status bar configuration.

GeoLynx 9-1-1 Training Plan

	Staff	Duration	Class Size	Number of Sessions
GeoLynx 9-1-1 User	Administrators/Users	2 hours	10 users/admins	3
GeoLynx 9-1-1 Admin	Administrator	Up to 4 hours	4	1

GeoLynx AVL Training

The GeoLynx AVL vehicle tracking system is an add-on module to the GeoLynx 9-1-1 Dispatch GIS system. GeoLynx AVL allows dispatchers to locate all emergency vehicles (squad cars, fire trucks, water patrol boats, ATV, etc.) that are equipped with tracking on a digital map. The training for this product is typically one hour.

Training topics will include:

- Display different indicators (user definable icons) for each kind of vehicle that has vehicle tracking.
- View vehicle positions throughout the day
- Create an accurate record of where your vehicles have been, how long they've been stopped at any given location, and a record of the entire route, thereby creating the capability for "after the fact" reconstruction of a unit's activity, movement, routes of travel, and status throughout a defined period of time.
-

GeoLynx AVL Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx AVL User	Administrators/Users	1 hour	10 users/admins	3
GeoLynx AVL Admin	Administrator	Up to 4 hours	4	1

GeoLynx Mobile Training

GeoLynx Mobile is a "mobile" version of GeoLynx 9-1-1. GeoLynx Mobile takes the same mapping functionality present in your communications center and moves it into the field providing your emergency response professionals with information that allows them to make informed decisions. The training time for this product is typically one hour.

Training topics will include:

- How to access image databases stored locally on laptops (i.e. blueprints property images, etc.)

- How to utilize map-centering modes for “hands-free” operation, requiring no user interaction while navigating to a screen
- GeoLynx Mobile provides spatial context from your location to the incident location
- Configure vehicle icons to represent all other vehicles on the AVL network (i. e. ambulance, fire trucks, etc.)
- How to locate an address to find its exact location on the map
- How to utilize the “mark” button to quickly mark a spot on the map in the event they need to return to a specific location
- Dispatcher-to-vehicle and vehicle-to-vehicle text messages can be sent in times of “radio silence”

GeoLynx Mobile Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx Mobile User	Administrator/Users	1 hour	6	3
GeoLynx Mobile Admin	Administrator	Up to 4 hours	4	1

GeoLynx EOC Training

GeoLynx EOC training course is designed for the Emergency Operations Center staff serving as the primary administrators and users of the GeoLynx EOC system. These staff members typically are responsible for coordinating resources across many departments to respond to large scale emergency events. The assigned GeoLynx EOC administrator will be responsible for administering and operating the GeoLynx EOC system. We recommend having a primary administrator *and* a secondary administrator who will step in if the primary administrator is not available. There should also be several staff members who share these responsibilities and attend the training sessions.

Training topics will include:

- Create user groups and authentication process
- Basic operations such as zoom-in, zoom-out, pan and measure
- Advanced operations such as drawing, query features, Web communication, plume modeling and GIS layer management
- Update map data
- Event management tools for drawing features on the map
- How to train other users who view map layers displayed by GeoLynx EOC
- Modify system configuration settings

GeoLynx EOC Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
GeoLynx EOC	User	2 hours	4-6	2
GeoLynx EOC	Administrator	Up to 3 hours	4-6	1

Acceptance Testing

Upon completion of the installation and training, GeoComm will provide the City of Frisco with an Acceptance Test Plan (ATP), which is used to test all aspects of the product and its performance. Ideally, the ATP is completed immediately following installation and training.

Documentation

GeoComm provides “System Administration” and “User” reference manuals with this system showing complete operation, administrative setup/configuration and reference guides.

These manuals are used as part of the training provided after installation of the public safety software.

Document	Staff
GeoLynx 9-1-1 User Reference Manual	Operations User
GeoLynx 9-1-1 System Administration Reference Manual	System Administrators
GeoLynx AVL Reference Manual	System Administrators
GeoLynx Mobile Reference Manual	Operations Users
GeoLynx Mobile System Administration Reference Manual	System Administrators
GeoLynx EOC Reference Manual	System Administrators
Acceptance Test Plan	System Administrators

One professionally printed user and administration reference manual is provided for each software license. Digital copies for printing by the customer are available upon request at no charge.

Additionally, each of our software manuals is included as an Adobe Acrobat .pdf version of the reference manual in the software’s help tool. The manuals are sorted and bookmarks are available for easy searching of information located throughout the manuals.

Installation and Training Plan

The final schedule for installation and training will agreed upon by the City of Frisco and the GeoComm Implementation team.

The training sessions are subject to be adjusted throughout the week they are scheduled based on the City of Frisco needs.

On-site Visit One

GeoComm will install “STAGING” environment in the EOC. This will include installation of:

- GeoLynx 9-1-1 Dispatch GIS (2 licenses)
- GeoLynx AVL Automatic Vehicle Location (2 licenses)
- GeoLynx Mobile Mobile Response GIS (5 licenses)
- CAD interface

On-site Visit One Installation Plan

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Implementation Specialist One	Travel	Software Installation	Software Installation	Software Installation	Software Installation	Travel
Implementation Specialist Two	Travel	Software Installation	Software Installation	Software Installation	Software Installation	Travel

On-site Visit Two

GeoComm will install functional environment in the PSAP and complete training. This will include installation of:

- GeoLynx 9-1-1 Dispatch GIS (6 licenses in PSAP)

- GeoLynx AVL Automatic Vehicle Location (6 licenses in PSAP)
- CAD interface

On-site Visit Two Installation and Training Plan

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Implementation Specialist One	n/a	Travel	Software Installation	Software Installation	Software Installation	Travel
Implementation Specialist Two and Three	n/a	Travel	Software Training including: Hands-on GeoLynx 9-1-1/AVL User Training – Morning Session • Up to 10 users • 2 hours Hands-on GeoLynx 9-1-1/AVL User Training – Afternoon Session • Up to 10 users • 2 hours Hands-on GeoLynx 9-1-1/AVL User Training – Evening Session • Up to 10 users • 2 hours	Software Training including: GeoLynx Mobile User Training – Morning Session • Up to 6 users • 1 hour GeoLynx Mobile User Training – Afternoon Session • Up to 6 users • 1 hour GeoLynx Mobile User Training – Evening Session • Up to 6 users • 1 hour	Software Training including: GeoLynx 9-1-1/AVL Admin Training • Up to 4 admin • Up to 4 hours GeoLynx Mobile Admin Training • Up to 4 admin • Up to 4 hours	Travel

On-site Visit Three

GeoComm will install and configure GeoLynx EOC via full remote access provided by the City of Frisco prior to on-site integration and training.

GeoComm will integrate GeoLynx EOC and train on software.

On-site Visit Three Integration and Training Plan

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Implementation Specialist One	n/a	Travel	Software Installation	Software Installation	Software Training including: Hands-on GeoLynx EOC User Training • Up to 6 users • Up to 2 hours Hands-on GeoLynx EOC User Training • Up to 5 users • Up to 2 hours Hands-on GeoLynx EOC Admin Training • Up to 4 admin • Up to 3 hours	Travel

Software Support and Maintenance

Warranty Period

Following software implementation, GeoComm will provide you with an Acceptance Test Plan to test all aspects of the product and its performance. Once the test plan is completed, a 90-day warranty period will begin. During this period, you will have unlimited access to our Technical Support Analysts via telephone, e-mail, or fax. Whether it is a simple question or a complex issue, GeoComm will assist you to ensure full performance of your software.

Once the 90-day warranty period ends, GeoComm offers an annual software support and maintenance agreement for a fixed price or you can opt for services as needed at a rate of $95 per hour, minimum one hour.

Software Upgrades

GeoComm recognizes the importance of continued software enhancements and innovation. Our Software Development Team is charged with staying on top of all industry-related developments and to incorporate desirable features into our software. Also, our customers play a significant role by making software enhancement requests and providing feedback either through their support calls or via our customer satisfaction surveys.

GeoComm systematically develops each of the GeoComm software applications to ensure new software enhancements and latest technological changes are incorporated regularly into each software application. GeoComm key staff members review software enhancements recommendations from internal and external customers. Each of these enhancement requests are entered in our Microsoft Dynamics Customer Relationship Management (CRM) software for future review and tracking. Features incorporated into the latest software release are based on a variety of factors such as the number of customers making the request, overall impact to all of our customer base, etc.

Upon completion of a new release, GeoComm's technical staff utilizes CRM to determine which customers are impacted by the new release. GeoComm delivers a formal packet that includes a version upgrade CD, documentation highlighting changes, and technical support guidelines. GeoComm then contacts the customer to verify receipt of the packet and to answer any questions. To aid our technical support staff, information in our CRM tracking system is updated to reflect the installation of the latest software version.

Unlimited Hotline Support

Hotline Support consists of technical assistance and product coaching by trained and experienced specialists in an advisory capacity via a toll-free telephone number, fax, or e-mail, relating to the operation of any portion of the GeoLynx 9-1-1 Software Suite. A Technical Support Analyst will work with you to resolve the issue upon receiving the telephone call, fax, or e-mail.

Availability

Emergency Calls are addressed 24 hours a day, seven days a week via a toll-free number / pager system. A technical staff member will return your emergency calls requiring immediate attention.

GeoComm defines emergency calls as one or more of the following:

- System alarms where software does not process calls, or
- System locks up repeatedly without ability to recover.

During our regular business hours, 8 a.m. to 5 p.m. Central Standard Time, Monday through Friday, excluding holidays, customers are allowed unlimited toll-free calls, e-mails, and faxes related to any concern with the software.

If the hotline is called outside of regular business hours with non-emergency matters that could be addressed during regular business hours, you will be billed for such calls at a rate of $95 per hour (minimum one hour). These fees will be payable, in addition to the normal annual support and maintenance fee, within 30 days of receiving an invoice.

Support also consists of remote access into your software for troubleshooting. This does not cover calls related to issues with other vendors.

GeoComm Deliverables

GeoLynx 9-1-1

GeoComm will deliver the following elements to the City of Frisco as part of this project:

- GeoLynx 9-1-1 software license(s)
- Product Installer CD
- Software manual(s)
- On-site installation
- Acceptance test plan
- One on-site system administrator training session
- Two on-site user courses

GeoLynx AVL

GeoComm will deliver the following elements to the City of Frisco as part of this project:

- GeoLynx AVL software license(s)
- Product Installer CD
- Software manual(s)
- Pre-installation IP AVL implementation services
- On-site installation
- Acceptance test plan
- On-site training

GeoLynx Mobile

GeoComm will deliver the following elements to the City of Frisco as part of this project:

- GeoLynx Mobile software license(s)
- Product Installer CD
- Software manual(s)
- On-site installation
- Acceptance test plan
- On-site training

GeoLynx EOC

- GeoLynx EOC software license(s)
- Software manual(s)
- On-site installation
- Acceptance test plan
- On-site training

Custom CAD Interface

- Interface development
- Configuration
- On-site installation

GeoLynx 9-1-1 is designed on a server and database architecture so all configuration settings, as well as ALI and optional AVL data, is channeled through the server and database where it is picked up by GeoLynx 9-1-1 client for display of data, therefore a server is required.

Prior to GeoComm's arrival, the City of Frisco must:

- Have a dedicated server for GeoLynx 9-1-1.
- Ensure hardware meeting the required specifications on the following page is available at the time of installation.

System Component	Minimum	Recommended
Description	Typical desktop computer workstation. The GeoLynx Network Server running GeoComm Message Switch Application allows a single connection to E9-1-1 ALI, AVL, and/or CAD systems. The Message Switch Application can distribute data from these subsystems to any network attached GeoLynx 9-1-1 workstation client. The GeoLynx 9-1-1 Network Server can also be used as a GIS map data storage container and GeoLynx 9-1-1 workstation update mechanism. The workstation should be accessible 24/7.	
CPU	2.0 GHz Intel Pentium 4 Processor or AMD equivalent	3.0 GHz Pentium 4 Processor or AMD equivalent
RA	1GB RAM	2GB RAM
Available Hard Drive	10 GB depends on size of map data and size of aerial imagery, if applicable	80 GB hard drive with space available for map data
Display	17'' 800x600, 256 color depth	17" or 21" monitor, 1024x768, 24 or 32 bit color depth
Video Card	32 MB video card	128 MB dedicated memory video card
Resolution	1024x768 capable video card with 17" monitor, 16-bit color [LCD or CRT]	1280x1024 capable video card with 19" monitor, 32-bit color [LCD or CRT]
Operating System	Windows 2000 or XP Pro	
Network Card	10/100 Mbps depends on network speed	10/100/1000 Mbps depends on network speed. GeoLynx 9-1-1 using enterprise geodatabases requires at least a gigabit network.
Serial Ports	2 Port DB9 SIIG PCI Serial Card (Dual com ports) for external connection to 911 equipment and/or AVL subsystem modems on the server application with the GeoComm message switch. Note – other brands than SIIG may be used, however PCI serial cards eliminate resources and interrupt sharing problems between multiple ports to be used concurrently.	
CD-ROM Drive	CDRW Drive	48X DVDRW Drive
Floppy Disk Drive	3.5" 1.44 MB*	
Modem	Optional 56 kbps hardware-based fax modem [for faxing maps]	
Remote Access	Dial-up or high-speed Internet connection	High-speed Internet connection

System Component	Minimum	Recommended
Network	• TCP/IP Protocol installed, static IP address assigned • 10/100/1000 baseT Network Interface Adapter • 10/100/1000 baseT hub for connecting workstations Network speed requirements depend on usage: • 10 baseT: suitable for message switch operations and periodic scheduled file update processes • 100/1000 baseT: suitable for message switch operations and frequent periodic scheduled file update processes, as well as live access of GIS data from a server.	

*Optional in lieu of external USB memory

- Have all computers installed and connected to the LAN. GeoComm is not responsible for setup or maintenance of the LAN connections or LAN infrastructure. Facilities that have not been properly setup upon our arrival may cause significant delay in our portion of the installation and may be subject to an extended visit or additional visits. The cost of these extensions or extra visits shall be invoiced according to our normal labor rates plus additional travel expenses, including any penalties assessed for pre-arranged accommodations.
- Make remote connections available on each workstation. GeoComm will test the connection prior to arrival to ensure it provides the expected connectivity between GeoComm and the City of Frisco workstations. Without remote access, help support will be limited.
- Have RS232 cable or CAT5 cable ran from the ALI Controller location to the GeoLynx 9-1-1 or Message Switch location.
- Provide an operational link from the GeoLynx 9-1-1 location to a NENA standard CAD port on the ALI controller, including a valid and operational ALI data stream. Have the parameters configured on the CAD as outlined by GeoComm's documentation.
- Provide data meeting GeoLynx 9-1-1 map data specifications. Four GIS data layers, in ESRI file geodatabase format, are required in GeoComm's GeoLynx Family of Products. GeoLynx 9-1-1 required map data layers and description of each are included in the table below.

Layers	Description
Roads Layer (polyline)	▪ The roads layer is a required layer (line feature). ▪ No specific file or field names are required. ▪ The following minimum attributes are required: MSAG-valid road names, street ranges, and left and right Emergency Service Number (ESN). ▪ Road names can be concatenated in a single field or parsed out. ▪ Extra spaces and punctuation should be removed from all data fields. ▪ It is recommended that address ranges are broken down into four fields. ▪ Routing attributes are required if routing functionality is desired. ▪ A road code field populated with road type or speed limit is required for computing drive time distance using GeoLynx 9-1-1's routing functionality.
Emergency Service Zones Layer (polygon)	▪ The ESZ layer is a required layer (polygon feature). ▪ No specific file name or field names are needed. However, minimum attributes include emergency service number, fire responder, law responder, and medical responder broken into five fields.

Layers	Description
Political Boundaries Layer (polygon)	▪ The boundaries layer is a required layer (polygon feature). ▪ It is recommended that datasets containing more than one jurisdiction have political boundaries all on one layer. ▪ No specific file name or field names are needed. However, two separate fields are required. One attributed with community name and the other attributed with unique codes depicting individual jurisdictions for color rendering and setting zooming levels in the GeoLynx Family of Products.
Address Locator(s)	Address locators define the process for finding address locations and map features based on a variety of different reference data, such as streets, parcels, address points, etc. At a minimum, a single address locator is required for plotting addresses or locations on a roads layer or other primary search layer. GeoComm recommends a refining zone be used with the selected address locator style, but is not a requirement. For refining attributes, GeoComm recommends an ESN or MSAG-valid community name be used.
Other Map Data Layers	
Primary Search Layer	To use a primary search layer to locate wireline 9-1-1 calls it must meet the following requirements: ▪ The primary search layer must contain either point or polygon features. ▪ The house number must be in its own field. ▪ The road name can be concatenated in a single field or parsed out. ▪ The road names should be capitalized and extra spaces should be removed. ▪ Any other information that may be displayed, such as apartment, suite, lot, etc., should be contained in a field other than the combined address field.
Label Layers	Two options for applying labels to map data layers used in GeoLynx 9-1-1 include: ▪ Dynamic labeling (auto-label) ▪ Annotation text When applying dynamic labels, map data layers are labeled based on the ESRI Standard Label Engine using an auto-label process that generates and positions labels automatically. Dynamic labels are not a separate text feature. GeoLynx 9-1-1 uses the Maplex extension. Maplex for ArcGIS is an automated high-quality cartographic text placement and labeling extension for ArcGIS Desktop. Maplex for ArcGIS uses the proven Maplex text placement engine to produce high-quality cartographic automated labeling for digital and hard copy maps. Maplex for ArcGIS greatly enhances cartographic quality. An annotation text layer is an alternative to dynamic labeling. With annotation, each piece of text stores its own position, text string, and display properties. The main advantage that an annotation label has over dynamic labels is it allows for more precise control over label placement.
Alternate Name Table	In some cases, roads may be known by more than one name or a road name may have multiple spelling variations. For example, Arlington Highway is alternatively known as W Main Street and US Highway 66. The alternate road name table enables GeoLynx 9-1-1 to utilize multiple road names for the same segment of road. To account for these situations, an address locator style should be selected that supports alternative searches, such as US Streets with Zone and AltName or US One Address with AltName. When building an address locator for alternative name searches, we recommend following specifications as outlined by ESRI. These specifications can be referenced in ArcGIS Desktop Help.

Layers	Description
Wireless Sector Layer	Due to the increasing use of wireless telephones, it is becoming imperative to be able to locate wireless 9-1-1 calls. GeoLynx 9-1-1 is capable of mapping wireless Phase I and Phase II 9-1-1 calls. To map wireless Phase I calls the following is required: ▪ A wireless sector layer containing polygon features depicting the coverage area of the sector. ▪ The layer file name must be called "cell_l" and include minimum fields such as unique id and wireless carrier information. Attribute data should be capitalized. Note: The wireless mapping functionality can be implemented only after a wireless 9-1-1 network has been established by the wireless carriers and the PSAP is receiving Phase I wireless E9-1-1 calls.
Alias Table	An alias table is a table that contains place names and addresses. An address locator will use this table to search for a place name and then use the associated address to locate the location on the map. For example, in GeoLynx 9-1-1, a user may search for a location by its name, such as Wrigley Field. When the user searches for Wrigley Field, the address locator will reference the alias table and look for Wrigley Field to determine the address 1060 W Addison St to locate on the map. When building an alias table, we recommend following specifications as outlined by ESRI. These specifications can be referenced in ArcGIS Desktop Help.

Notes: GeoLynx 9-1-1 also supports shapefile, ArcSDE geodatabase, and personal geodatabase formats from release 9.2 or higher.

At the time of the software setup GeoComm's GIS personnel will provide our detailed GIS map data specifications. These specifications will provide the layer by layer detailed description and file structure requirements. Ultimately, the quality and availability of the map data provided will directly affect the functionality of the software.

The GIS data layers can be in any coordinate system or projection supported by the ESRI projection engine (State Plane, UTM, etc.), as well as any geodetic datum. If a custom coordinate system is used, the .prj file will need to be supplied to GeoComm for review/verification of use within the GeoLynx Family of Products. It is recommended that all map layers be in the same projection. However, GeoLynx Family of Products do have the ability to display map data layers that are in different projections.

In addition to these GIS data layers, there is no set limit on the number of other GIS data layers that can be integrated into the map display setup.

GeoLynx AVL

The City of Frisco is responsible for purchasing one license of GeoLynx 9-1-1, the prerequisite software, for each license of GeoLynx AVL. In addition, the City of Frisco is responsible for:

- Purchasing and having available a data plan for communication from the mobile units to the communications center.
- Installing approved GPS units in each mobile unit which will be tracked in AVL.

For the IP AVL system to operate as stated the City of Frisco must:

- Currently have installed or purchase and install one mobile data terminal per vehicle that will be tracked in GeoLynx AVL.
- Purchase one Standard IP AVL Client Interface per mobile data terminal that will be tracked in GeoLynx AVL.
- Currently have connected or purchase and connect one GPS unit to each mobile data terminal per vehicle that will be tracked in GeoLynx AVL.
- Currently have connected or purchase and connect one aircard to each mobile data terminal per vehicle that will be tracked in GeoLynx AVL.
- Ensure mobile data terminals in the vehicles can communicate with the GeoComm Message Switch at the communications center.
- Ensure the mobile data terminals in vehicles are assigned static IP addresses.

- Ensure the GeoComm Message Switch at the communications center can communicate with GeoLynx 9-1-1.
- Purchase GeoLynx AVL.

Network configuration including the ability to transmit UDP datagrams from the mobile data terminals to the PC in dispatch and vice versa, and to ping the static IP addresses of the two mobile data terminals from a GeoLynx 9-1-1 workstation is the City of Frisco's responsibility.

GeoLynx Mobile

Prior to GeoComm's arrival, the City of Frisco must:

- Ensure there is a VPN connection between GeoLynx 9-1-1 and the mobile data terminals which will have GeoLynx Mobile installed on them.
- Ensure mobile data terminals are installed in each vehicle prior to GeoLynx Mobile installation.
- Purchase and have available one mobile data terminal, meeting the required specifications below, for each vehicle being equipped with GeoLynx Mobile

System Components	Minimum	Recommended
Description	Typical mobile data computer	
CPU	2 GHz	3 GHz or higher
RAM	1 GB	2 GB or higher
Available Hard Drive Space	Depending on map data set, 2 GB or more	Depending on map data set, 2 GB or more. GeoComm recommends shock mounted hard drive to protect against vibration and jarring damage in a mobile environment.
Display	800x600 resolution, 256 color depth, with Active Matrix	1024 x 768 resolution, 24 or 32 bit color depth, with Active Matrix; it is desirable to choose a display that is highly visible in a mobile environment which may include side angle viewing and different lighting environments.
Graphics Card	32 MB graphics card	64 MB graphics card or higher
Operating System	Microsoft Windows XP Pro	Microsoft Windows XP Pro
Serial Ports	If your application requires a serial port, GeoComm strongly recommends you select a mobile data computer with a built in hardware serial port. While it is possible to add serial ports with PCMCIA cards or USP adapters, GeoComm has found these to be less reliable in a mobile environment. If your application requires multiple serial ports, GeoComm recommends a mobile docking station built for this purpose. Call GeoComm if you have any questions regarding your GeoComm application and serial port requirements.	
CD / DVD-ROM Drive	Optional	Optional
Durability	Some customers prefer typical laptops over more expensive semi-durable or ruggedized mobile data computers. Typical laptops are less expensive but do not last as long in a mobile environment. Some customers use this to their advantage because they can install newer, faster technology as it becomes available, in a sense viewing the typical laptop as disposable.	Semi-durable or ruggedized mobile data computer.

GeoLynx EOC

The City of Frisco is responsible for providing:

- An Internet connection with a minimum speed of 512 KB/sec symmetrical, recommended - 1.5 MB/sec symmetrical, in order to serve the GeoLynx EOC Web site to external site users.

- An Intranet connection.
- A dedicated Web server specifically for GeoLynx EOC built to the specifications listed below.

System Component	Description
Base Unit	Dual Core Xeon Processor 5160 4 MB Cache, 3.0 GHz, 1333 MHz FSBPE2900 (223-4721)
Processor	Dual Core Xeon 2nd Processor 5160, 4 MB Cache, 3.00 GHz 1333 MHz FSB, PE 2900 (311-6232)
Memory	8 GB 667 MHz (4x2 GB), Dual Ranked Fully Buffered DIMMs (311-6197)
Keyboard	Keyboard, USB, Black (310-8170)
Video Card	Broadcom TCP/IP Offload EngineNot Enabled (430-1765)
Hard Drive	73 GB 15K RPM Serial-Attach SCSI 3 Gbps 3.5-in HotPlug HardDrive (341-3029)
Hard Drive Controller	PERC6i SAS RAID Controller Internal with Battery (341-5699)
Floppy Disk Drive	No Floppy Drive (341-3052)
Operating System	Windows Server 2003 R2 Standard x64 Edition with SP2 Includes 5 CALs (420-7122)
Mouse	Optical Two-Button Mouse USB, Black (310-8172)
NIC	Embedded Broadcom NetXtreme II5708 GigabitEthernet NIC (430-1764)
CD-ROM or DVD-ROM Drive	16X DVD-ROM for PowerEdge 2900 (313-5854)
Sound Card	Tower Bezel Included (313-4363)
Documentation Diskette	Electronic Documentation and OpenManage CD Kit, PE2900 (310-7402)
Additional Storage Products	73 GB 15K RPM Serial-Attach SCSI 3 Gbps 3.5-in HotPlug HardDrive (341-3029)
Feature	Integrated SAS/SATA RAID 1 PERC 6/i Integrated/SAS6/iR (341-5754)
Feature	Tower Chassis Orientation (313-5853)
Service	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, 2YR Ext (960-9002)
Service	GOLD Enterprise Support: 7x24 Escalation Manager, Hw/Sw Tech Phone Support, Enterprise Command Center, 3Yr (960-9252)
Service	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, Init YR (970-4770)
Service	Dell Hardware Warranty Plus Onsite Service Initial YR (984-1467)
Service	Dell Hardware Warranty, Extended Year(s) (984-1469)
Installation	On-Site Installation Declined (900-9997)
Misc	Redundant Power Supply with Y-Cord for PowerEdge 2900 (310-7405)